MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

HEALTH SCIENCES LIBRARY
OF THE
UNIVERSITY OF NORTH CAROLINA

History Room

Digitized by the Internet Archive
in 2011 with funding from
North Carolina History of Health Digital Collection, an LSTA-funded NC ECHO digitization grant project

http://www.archive.org/details/transactions791932medi

M. B. Stevens

TRANSACTIONS

OF THE

MEDICAL SOCIETY

OF THE

STATE OF NORTH CAROLINA

DIVISION OF HEALTH SCIENCES LIBRARY

SEVENTY-NINTH ANNUAL SESSION

HELD AT

WINSTON-SALEM, NORTH CAROLINA

April 18, 19 and 20, 1932

President

M. L. STEVENS, M.D., F.A.C.P., Asheville

Secretary-Treasurer

L. B. McBRAYER, M.D., F.A.C.P., Southern Pines

Reporters

HORNE & SHELL, INC., New York
MR. BERRY HORNE
MISS DOROTHY SIEGAL
MR. A. F. LeMEUR

COMMITTEE ON PUBLICATIONS

Dr. L. B. McBrayer, *Secretary-Treasurer, Chairman ex-officio*....Southern Pines
Dr. P. P. McCain.....Sanatorium
Dr. J. W. Dickie.....Southern Pines

"It is understood that the Society is not to be considered as endorsing all the views and opinions of authors of papers published in the Transactions of the Society."

—*Extract from By-Laws, Chapter 10, Section 8.*

EARLY HISTORY OF THE NORTH CAROLINA MEDICAL SOCIETY, FROM ORGANIZATION TO 1804

Date	Place	President	Vice-Presidents	Corresponding Secretary	Secretary	Recording Secretary	Treasurer	Censors
Dec. 17, 1799, or April 16, 1800	Raleigh	Richard Fenner	Nathaniel Loomis John Claiborne	Calvin Jones		Wm. B. Hill	Cargill Massenburg	Sterling Wheaton James Webb Jas. John Pasteur Jason Hand
Dec. 1, 1800	Raleigh	Richard Fenner			Sterling Wheaton			
Dec. 1, 1801	Raleigh	John C. Osborne	Thomas Mitchell Richard Fenner	Calvin Jones	Sterling Wheaton		Cargill Massenburg	James Webb John Sibley
1802	Raleigh	John C. Osborne		Calvin Jones				
1803	Raleigh	John C. Osborne		Calvin Jones				
1804	Raleigh	John C. Osborne		Calvin Jones				

HISTORY OF THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA FROM 1849 TO 1931

*Missing Data Not to be Found in Record

	Date	Place of Meeting	Number in Attendance	President	Vice-Presidents*	Secretary	Treasurer*	Members on Roll*	Honorary Members*	Honorary Fellows*
	1849	Raleigh...	25	F. J. Hill.....	.....	W. H. McKee.....	.....	25	.....	.....
1	1850	Raleigh.....	21	E. Strudwick.....	F. J. Haywood, C. E. Johnson, J. E. Williamson, W. G. Thomas.	W. H. McKee.....	W. G. Hill.....	38	9	.....
2	1851	Raleigh.....	23	E. Strudwick.....	C. E. Johnson	W. H. McKee.....	W. G. Hill.....	46	0	.....
3	1852	Wilmington...	38	J. E. Williamson..	Thomas N. Cameron, William G. Hill, Johnston B. Jones, N. J. Pittman.	E. B. Haywood...	J. J. W. Tucker...	72	12	.....
4	1853	Fayetteville...	24	J. E. Williamson..	William G. Hill, Johnston B. Jones, J. B. G. Myers, N. J. Pittman.	W. W. Harris.....	Daniel Dupree....	80	14	.....
5	1854	Raleigh.....	37	J. H. Dickson.....	N. J. Pittman, J. B. G. Myers, J. Graham Tull, A. D. McLean.	S. S. Satchwell....	Daniel Dupree....	84	17	.....
6	1855	Salisbury.....	23	J. H. Dickson.....	J. Graham Tull, Owen Hadley, A. D. McLean, Hugh Kelly.	S. S. Satchwell....	J. B. Dunn.....	96	18	.....
7	1856	Raleigh.....	35	C. E. Johnson.....	Marcellus Whitehead, E. R. Gibson, Johnston B. Jones, O. F. Manson.	S. S. Satchwell....	J. B. Dunn.....	101	22	.....
8	1857	Edenton.....	25	C. E. Johnson.....	Marcellus Whitehead, O. F. Manson, H. W. Faison, E. T. Gibson.	W. G. Thomas....	J. B. Dunn.....	113	16	.....
9	1858	New Bern....	69	W. H. McKee....	Edward Warren, C. W. Graham, Caleb Winslow, A. B. Pierce.	W. G. Thomas....	J. B. Dunn.....	172	18	.....
10	1859	Statesville....	81	W. H. McKee.....	James G. Ramsey, P. E. Hines, J. R. Mercer, W. T. Howard.	W. G. Thomas....	C. W. Graham....	.....	.....	.....
11	1860	Washington...	64	N. J. Pittman.....	P. T. Henry, R. H. Winborne, M. Whitehead, T. S. Leach.	W. G. Thomas....	C. W. Graham....	233	18	.....
12	1861	Morganton...	23	N. J. Pittman.....	J. J. Summerell, C. T. Murphy, G. W. Hodges, W. A. B. Norcom.	W. G. Thomas....	C. W. Graham....	244	18	.....
13	1866	Raleigh.....	20	J. J. Summerell...	E. Burke Haywood, R. H. Winborne, W. L. Barrow, J. W. Jones.	W. G. Thomas....	C. W. Graham....	.....	.....	.....
14	1867	Tarboro.....	41	W. G. Thomas....	.....	S. S. Satchwell....	C. W. Graham....	288	11	.....
15	1868	Warrenton....	27	S. S. Satchwell....	Hugh Kelly, George A. Foote, Charles J. O'Hagan, J. H. Baker.	Thomas F. Wood..	J. W. Jones.....	.....	.....	.....
16	1869	Salisbury.....	36	E. B. Haywood...	Thomas E. Wilson, A. B. Pierce, C. T. Murphy, M. A. Locke.	Thomas F. Wood..	J. W. Jones.....	.....	.....	.....
17	1870	Wilmington...	38	C. J. O'Hagan....	E. A. Anderson, F. N. Luckey, W. R. Sharpe, R. L. Payne.	Thomas F. Wood..	J. W. Jones.....	.....	.....	.....
18	1871	Raleigh.....	35	Hugh Kelley.....	D. N. Patterson, R. C. Pearson, J. B. Seavy, G. L. Kirby.	Thomas F. Wood..	J. W. Jones.....	.....	.....	.....
19	1872	New Bern....	34	W. G. Hill.....	H. W. Faison, R. I. Hicks, G. H. Macon, W. A. B. Norcom.	James McKee.....	J. W. Jones.....	.....	.....	.....

20	1873	Statesville....	43	M. Whitehead....	W. T. Ennett, William Little, Charles Duffy, P. T. Jerman.	James McKee.....	H. T. Bahnson....	.....	.....	.....
21	1874	Charlotte.....	56	W. A. B. Norcom..	J. B. Jones, R. F. Lewis, C. G. Cox, J. L. Knight.	James McKee.....	H. T. Bahnson....	.....	.....	.....
22	1875	Wilson.....	60	J. W. Jones.....	Walker Debnam. J. A. Gibson, William Little, D. N. Patterson.	James McKee.....	H. T. Bahnson....	148	5	.....
23	1876	Fayetteville...	33	Peter E. Hines....	J. H. Baker, G. G. Smith, T. D. Haigh, J. K. Hall.	James McKee.....	H. T. Bahnson....	157	4	.....
24	1877	Salem.....	42	George A. Foote...	J. K. Hall, B. W. Robinson, A. Holmes, A. A. Hill.	James McKee.....	A. G. Carr.....	177	4	.....
25	1878	Goldsboro....	79	R. L. Payne.....	E. M. Rountree, Richard Anderson, S. B. Flowers, L. A. Stith.	L. J. Picot.....	A. G. Carr.....	194	6	.....
26	1879	Greensboro...	109	Chas. Duffy, Jr....	J. A. Gibson, Willis Alston, James McKee, A. A. Hill.	L. J. Picot.....	A. G. Carr.....	198	6	.....
27	1880	Wilmington...	105	J. F. Shaffner.....	J. K. Hall, W. C. McDuffie, W. R. Wilson, R. F. Lewis.	L. J. Picot.....	A. G. Carr.....	225	6	.....
28	1881	Asheville.....	92	R. B. Haywood...	J. E. McRee, W. H. Lilly, R. H. Speight, W. J. H. Bellamy.	L. J. Picot.....	A. G. Carr.....	254	6	.....
29	1882	Concord.....	65	Thos. F. Wood....	T. J. Moore, D. J. Cain, S. E. Evans, John McDonald.	L. J. Picot.....	A. G. Carr.....	297	7	.....
30	1883	Tarboro.....	112	J. K. Hall.....	A. W. Knox, J. M. Hadley, E. S. Foster, John Whitehead.	L. J. Picot.....	A. G. Carr.....	310	7	.....
31	1884	Raleigh.....	112	A. B. Pierce.....	F. W. Potter, G. W. Graham, R. Dillard, G. W. Long.	L. J. Picot.....	A. G. Carr.....	348	7	.....
32	1885	Durham.....	173	W. C. McDuffie...	James McKee, T. E. Anderson, W. H. Whitehead, A. G. Carr.	W. C. Murphy....	R. L. Payne, Jr....	424	6	.....
33	1886	New Bern....	113	Joseph Graham...	H. T. Bahnson, L. J. Picot, J. L. McMillan, W. W. Faison.	J. M. Baker.....	R. L. Payne, Jr....	438	7	.....
34	1887	Charlotte.....	112	H. T. Bahnson....	G. G. Smith, J. L. Nicholson, C. M. Van Poole, H. B. Ferguson.	J. M. Baker.....	R. L. Payne, Jr....	452	7	.....
35	1888	Fayetteville...	133	T. D. Haigh.....	W. T. Ennett, J. A. Dunn, T. E. Anderson.	J. M. Baker.....	C. M. Van Poole..	306	6	.....
36	1889	Elizabeth City.	50	W. T. Ennett.....	W. J. Jones, S. W. Stevenson, G. W. Long.	J. M. Baker.....	C. M. Van Poole..	410	6	.....
37	1890	Oxford.....	160	G. G. Thomas....	R. L. Payne, Jr., Richard Dillard, S. D. Booth.	J. M. Hays.....	C. M. Van Poole..	414	6	.....
38	1891	Asheville.....	135	R. H. Lewis.....	S. W. Battle, J. L. Nicholson, W. H. Lilly.	J. M. Hays.....	C. M. Van Poole..	422	6	.....
39	1892	Wilmington...	162	W. T. Cheatham..	T. S. Burbank, J. W. Long, W. H. H. Cobb, W. D. Hilliard.	J. M. Hays.....	C. M. Van Poole..	431	6	.....
40	1893	Raleigh.....	221	J. W. McNeill....	W. C. Galloway, H. H. Harris, J. M. Hadley, Thomas Hill.	R. D. Jewett.....	M. P. Perry.....	447	5	3
41	1894	Greensboro...	166	W. H. H. Cobb...	J. A. Hodges, R. W. Tate, Willis Alston, M. H. Fletcher.	R. D. Jewett.....	M. P. Perry.....	454	5	3
42	1895	Goldsboro....	.....	J. H. Tucker.....	J. Howell Way, W. H. Harrell, O. McMullan, C. A. Misenheimer.	R. D. Jewett.....	M. P. Perry.....	436	7	3
43	1896	Winston-Salem.....	158	R. L. Payne.....	S. D. Booth, J. P. Munroe, J. A. Burroughs, J. E. Grimsley.	R. D. Jewett.....	M. P. Perry.....	452	7	3

HISTORY OF THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA FROM 1849 TO 1931

*Missing Data Not to be Found in Record

Date		Place of Meeting	Number in Attendance	President	Vice-Presidents*	Secretary	Treasurer*	Members on Roll*	Honorary Members*	Honorary Fellows*
44	1897	Morehead City	103	P. L. Murphy	J. C. Walton, A. A. Kent, M. R. Adams, B. L. Long.	R. D. Jewett	M. P. Perry	406	6	3
45	1898	Charlotte	*....	Francis Duffy	E. C. Register, A. T. Cotton, J. B. H. Knight, F. H. Russell.	R. D. Jewett	M. P. Perry	437	6	21
46	1899	Asheville	152	L. J. Picot	I. W. Faison, J. W. White, H. H. Dodson, W. C. Brownson.	Geo. W. Presley	G. T. Sikes	489	6	16
47	1900	Tarboro	115	George W. Long	C. M. Van Poole, James M. Parrott, T. B. Williams, W. D. Hillard.	Geo. W. Presley	G. T. Sikes	482	6	21
48	1901	Durham	186	Julian M. Baker	M. H. Fletcher, C. A. Julian, D. A. Stanton, E. M. Summerell.	Geo. W. Presley	G. T. Sikes	515	5	18
49	1902	Wilmington	147	Robert S. Young	A. G. Carr, E. D. Dixon-Carroll, I. M. Taylor, J. M. Parrott.	Geo. W. Presley	G. T. Sikes	546	5	20
50	1903	Hot Springs	155	A. W. Knox	E. G. Moore, C. A. Julian, W. W. McKenzie, J. L. Nicholson.	J. Howell Way	G. T. Sikes	530	6	19
51	1904	Raleigh	326	H. B. Weaver	John Hey Williams, John C. Rodman, S. F. Pfohl.	J. Howell Way	G. T. Sikes	1,033	8	17
52	1905	Greensboro	361	David T. Tayloe	C. A. Julian, John T. Burrus, I. W. Faison.	J. Howell Way	G. T. Sikes	1,175	8	17
53	1906	Charlotte	406	E. C. Register	L. B. McBrayer, W. H. Cobb, Jr., W. O. Spencer.	J. Howell Way	G. T. Sikes	1,234	8	16
54	1907	Morehead City	217	Samuel D. Booth	C. M. Strong, J. E. McLaughlin, W. F. Hargrove.	David A. Stanton	H. McK. Tucker	888	7	16
55	1908	Winston-Salem	372	J. Howell Way	J. E. Stokes, J. A. Turner, W. H. Dixon.	David A. Stanton	H. McK. Tucker	998	7	28
56	1909	Asheville	337	J. F. Highsmith	C. M. Van Poole, D. A. Garrison, D. O. Dees.	David A. Stanton	H. McK. Tucker	1,067	7	25
57	1910	Wrightsville Beach	276	J. A. Burroughs† E. J. Wood	E. J. Wood, John Q. Myers, L. D. Wharton.	David A. Stanton	H. D. Walker	1,080	8	35
58	1911	Charlotte	412	C. M. Van Poole	J. V. McGougan, W. E. Warren, L. N. Glenn.	David A. Stanton	H. D. Walker	880	8	45
59	1912	Hendersonville	296	A. A. Kent	J. P. Munroe, W. P. Horton, J. G. Murphy	David A. Stanton	H. D. Walker	950	8	44
60	1913	Morehead City	232	J. P. Munroe	F. R. Harris, E. S. Bullock, L. B. Morse.	John A. Ferrell	H. D. Walker	1,133	8	40
61	1914	Raleigh	431	J. M. Parrott	E. T. Dickinson, J. T. J. Battle, D. E. Sevier.	John A. Ferrell	H. D. Walker	1,228	8	47
62	1915	Greensboro	443	L. B. McBrayer	J. J. Phillips, C. W. Moseley, S. M. Crowell.	John A. Ferrell	H. D. Walker	1,221	9	68

†Died during his term of office; succeeded by E. J. Wood, first vice-president.

63	1916	Durham.....	406	M. H. Fletcher....	J. L. Nicholson, L. N. Glenn, W. H. Hardison.	Benj. K. Hays....	W. M. Jones.....	1,228	10	79
64	1917	Asheville.....	280	Charles O'H. Laughinghouse..	D. J. Hill, J. L. Spruill, J. H. Shuford.	Benj. K. Hays....	W. M. Jones.....	1,271	11	81
65	1918	Pinehurst.....	291	I. W. Faison.....	Wm. deB. MacNider, Jos. B. Greene, Ben F. Royal.	Benj. K. Hays....	W. M. Jones.....	1,087	11	81
66	1919	Pinehurst.....	335	Cyrus Thompson..	J. W. Halford, T. W. Davis, A. McN. Blair.	Benj. K. Hays....	Acting Sec'y-Treas. L. B. McBrayer...	1,306	11	100
67	1920	Charlotte.....	479	C. V. Reynolds....	H. D. Walker, F. Stanley Whitaker, Thomas I. Fox.	Benj. K. Hays....	L. B. McBrayer...	1,497	12	100
68	1921	Pinehurst.....	404	T. E. Anderson...	C. S. Lawrence, W. H. Ward, J. M. Manning.	Benj. K. Hays....	L. B. McBrayer...	1,491	12	93
69	1922	Winston-Salem	507	H. A. Royster....	W. T. Parrott, B. C. Nalle, J. R. McCracken.	.....	Sec'y-Treas. L. B. McBrayer...	1,571	12	100
70	1923	Asheville.....	356	J. W. Long.....	F. M. Hanes, T. C. Johnson, B. L. Long.	.....	L. B. McBrayer...	1,592	9	101
71	1924	Raleigh.....	525	J. V. McGougan ..	J. L. Spruill, ‡Eugene B. Glenn, D. A. Garrison.	.....	L. B. McBrayer...	1,604	9	106
72	1925	Pinehurst.....	550	Albert Anderson...	W. L. Dunn, A. E. Bell, K. G. Averitt.	.....	L. B. McBrayer...	1,657	10	116
73	1926	Wrightsville Beach.....	445	Wm. deB. MacNider.....	J. P. Matheson, W. W. Dawson, H. H. Bass.	.....	L. B. McBrayer...	1,663	10	107
74	1927	Durham.....	653	John Q. Myers....	J. W. Carroll, A. Y. Linville, C. H. Cocke.	.....	L. B. McBrayer...	1,691	10	121
75	1928	Pinehurst.....	611	John T. Burrus...	G. H. Macon, R. F. Leinbach, W. R. Griffin.	.....	L. B. McBrayer...	1,738	11	143
76	1929	Greensboro...	671	Thurman D. Kitchin.....	Dr. W. L. Dunn,* Asheville, Dr. D. T. Tayloe, Jr., Washington, Dr. W. D. James, Hamlet.	.....	L. B. McBrayer...	1,666	11	146
77	1930	Pinehurst.....	701	L. A. Crowell.....	W. B. Murphy, Wm. E. Warren, N. B. Adams.	.....	L. B. McBrayer...	1,711	11	155
78	1931	Durham.....	714	J. G. Murphy.....	President-Elect: M. L. Stevens.....	Vice-Presidents: C. A. Julian, Greensboro..... J. W. Davis, Statesville.....	L. B. McBrayer...	1,600	10	164
79	1932	Winston-Salem.....	740	M. L. Stevens.....	Jno. B. Wright.....	C. W. Banner, Greensboro..... W. W. Sawyer, Elizabeth City..	L. B. McBrayer...	1,559	10	166

ROSTER OF MEMBERS OF THE VARIOUS BOARDS OF MEDICAL EXAMINERS OF THE STATE OF NORTH CAROLINA

FIRST BOARD

JAMES H. DICKSON, Wilmington....1859-1866
CHARLES E. JOHNSON, Raleigh....1859-1866
CALEB WINSLOW, Hertford....1859-1866
OTIS F. MANSON, Townsville....1859-1866
WILLIAM H. McKEE, Raleigh....1859-1866
CHRISTOPHER HAPPOLDT, Morganton....1859-1866
J. GRAHAM TULL, New Bern....1859-1866
SAMUEL T. IREDELL, Secretary....1859-1866

SECOND BOARD

N. J. PITTMAN, Tarboro....1866-1872
E. BURKE HAYWOOD, Raleigh....1866-1872
R. H. WINBORNE, Edenton....1866-1872
S. S. SATCHWELL, Rocky Point....1866-1872
J. J. SUMMERELL, Salisbury....1866-1872
R. B. HAYWOOD, Raleigh....1866-1872
M. WHITEHEAD, Salisbury....1866-1872
J. F. SHAFFNER, Salem....1866-1872
WILLIAM LITTLE, Secretary....1866-1867
THOMAS F. WOOD, Secretary, Wilmington....1867-1872

THIRD BOARD

CHARLES J. O'HAGAN, Greenville....1872-1878
W. A. B. NORCOM, Edenton....1872-1878
C. TATE MURPHY, Clinton....1872-1878
GEORGE A. FOOTE, Warrenton....1872-1878
J. W. JONES, Tarboro....1872-1878
R. L. PAYNE, Lexington....1872-1878
CHARLES DUFFY, JR., Secretary, New Bern....1872-1878

FOURTH BOARD

PETER E. HINES, Raleigh....1878-1884
THOMAS D. HAIGH, Fayetteville....1878-1884
GEORGE L. KIRBY, Goldsboro....1878-1884
THOMAS F. WOOD, Wilmington....1878-1884
JOSEPH GRAHAM, Charlotte....1878-1884
[1]ROBERT I. HICKS, Williamston....1878-1880
[2]RICHARD H. LEWIS, Raleigh....1880-1884
HENRY T. BAHNSON, Secretary, Salem....1878-1884

FIFTH BOARD

WILLIAM R. WOOD, Scotland Neck....1884-1890
AUGUSTUS W. KNOX, Raleigh....1884-1890
FRANCIS DUFFY, New Bern....1884-1890
PATRICK L. MURPHY, Morganton....1884-1890
WILLIS ALSTON, Littleton....1884-1890
J. A. REAGAN, Weaverville....1884-1890
W. J. H. BELLAMY, Secretary, Wilmington....1884-1890

SIXTH AND SEVENTH BOARDS

R. L. PAYNE, JR., Lexington....1890-1892
GEORGE W. PUREFOY, Asheville....1890-1892
GEORGE G. THOMAS, Wilmington....1890-1894
ROBERT S. YOUNG, Concord....1890-1894
WILLIAM H. WHITEHEAD, Rocky Mount....1890-1896
GEORGE W. LONG, Graham....1890-1896
L. J. PICOT, Secretary, Littleton....1890-1896
JULIAN M. BAKER, Tarboro....1892-1898
H. B. WEAVER, Secretary, Asheville....1892-1898
[3]J. M. HAYS, Greensboro....1894-1897
[4]KEMP P. BATTLE, JR., Raleigh....1897-1900

[1]Resigned before expiration of term.
[2]Elected for unexpired term of Dr. Hicks.
[3]Died before the expiration of his term.
[4] Elected to serve unexpired term of Dr. Hays.

[1]THOMAS S. BURBANK, Wilmington....1894-1898
[2]WILLIAM H. H. COBB, Goldsboro....1898-1900
[1]RICHARD H. WHITEHEAD, Chapel Hill....1896-1898
[3]J. HOWELL WAY, Secretary, Waynesville....1898-1902
DAVID T. TAYLOE, Washington....1896-1902
THOMAS E. ANDERSON, Secretary, Statesville....1896-1902
[4]ALBERT ANDERSON, Wilson....1898-1902
[4]EDWARD C. REGISTER, Charlotte....1898-1902
[4]THOMAS S. McMULLAN, Hertford....1900-1902
[4]JOHN C. WALTON....1900-1902

EIGHTH BOARD

A. A. KENT, Lenoir....1902-1908
CHARLES O'H. LAUGHINGHOUSE, Greenville....1902-1908
M. H. FLETCHER, Asheville....1902-1908
JAMES M. PARROTT, Kinston....1902-1908
J. T. J. BATTLE, Greensboro....1902-1908
FRANK H. RUSSELL, Wilmington....1902-1908
[1]GEORGE W. PRESSLY, Secretary, Charlotte....1902-1906
[5]G. T. SIKES, Secretary, Grissom....1906-1908

NINTH BOARD

LEWIS B. McBRAYER, Asheville....1908-1914
JOHN C. RODMAN, Washington....1908-1914
WILLIAM W. McKENZIE, Salisbury....1908-1914
HENRY H. DODSON, Greensboro....1908-1914
JOHN BYNUM, Winston-Salem....1908-1914
J. L. NICHOLSON, Richlands....1908-1914
BENJ. K. HAYS, Secretary, Oxford....1908-1914

TENTH BOARD

ISAAC M. TAYLOR, Morganton....1914-1920
JOHN Q. MYERS, Charlotte....1914-1920
JACOB F. HIGHSMITH, Fayetteville....1914-1920
MARTIN L. STEVENS, Asheville....1914-1920
[6]CHARLES T. HARPER, Wilmington....1914-1915
[7]EDWIN G. MOORE, Elm City....1915-1920
[8]JOHN G. BLOUNT, Washington....1914-1920
HUBERT A. ROYSTER, Secretary, Raleigh....1914-1920

ELEVENTH BOARD

LESTER A. CROWELL, Lincolnton....1920-1926
WILLIAM P. HOLT, Duke....1920-1926
J. GERALD MURPHY, Wilmington....1920-1926
LUCIUS N. GLENN, Gastonia....1920-1926
CLARENCE A. SHORE, Raleigh....1920-1926
WILLIAM M. JONES, Greensboro....1920-1926
KEMP P. B. BONNER, Secretary, Morehead City....1920-1926

TWELFTH BOARD

PAUL H. RINGER, Asheville....1926-1932
W. HOUSTON MOORE, Wilmington....1926-1932
T. W. M. LONG, Roanoke Rapids....1926-1932
[6]W. W. DAWSON, Grifton....1926-1932
J. K. PEPPER, Winston-Salem....1926-1932
FOY ROBERSON, Durham....1926-1932
JOHN W. McCONNELL, Secretary, Davidson....1926-1932
[9]DAVID T. TAYLOE, JR., Washington....1930-1932

THIRTEENTH BOARD

BEN F. ROYAL, Morehead City....1932-1938
BENJ. J. LAWRENCE, Raleigh....1932-1938
F. WEBB GRIFFITH, Asheville....1932-1938
HAMILTON W. McKAY, Charlotte....1932-1938
J. W. VERNON, Morganton....1932-1938
W. H. SMITH, Goldsboro....1932-1938
K. G. AVERITT, Cedar Creek....1932-1938

---

[1]Resigned before the expiration of his term.
[2]Elected to serve the unexpired term of Dr. Burbank.
[3]Elected to serve the unexpired term of Dr. Whitehead.
[4]Elected for short term expiring in 1902.
[5]Elected to serve the unexpired term of Dr. Pressly.
[6]Died before the expiration of his term.
[7]Elected to serve the unexpired term of Dr. Harper.
[8]Died a few months before the expiration of his term; such a short time that the vacancy was not filled.
[9]Elected to serve unexpired term of Dr. W. W. Dawson.

NOTE: In 1890 the Medical Society of the State of North Carolina adopted the plan of electing members of the Board in such a manner that the terms would expire at different intervals of two years. This practice was followed for twelve years, or until 1902, when the plan was abandoned; an equivalent of two terms of six years each. It is evident that the Society arranged to abandon the policy as early as 1898, as two members were elected for short terms, and two years later two other members were elected for still shorter terms. It is therefore impossible to separate the sixth and seventh Boards, since the membership was overlapping.

ROSTER OF MEMBERS NORTH CAROLINA STATE BOARD OF HEALTH FROM ORGANIZATION IN 1877 TO 1931

Name	Address	Appointed by	Term
S. S. Satchwell, M.D., President	Rocky Point	State Society	1877 to 1878
Thomas F. Wood, M.D., Secretary	Wilmington	State Society	1877 to 1878
Joseph Graham, M.D.	Charlotte	State Society	1877 to 1878
Charles Duffy, Jr., M.D.	New Bern	State Society	1877 to 1878
Peter E. Hines, M.D.	Raleigh	State Society	1877 to 1878
George A. Foote, M.D.	Warrenton	State Society	1877 to 1878
S. S. Satchwell, M.D., President	Rocky Point	State Society	1878 to 1884
Thomas F. Wood, M.D., Secretary	Wilmington	State Society	1878 to 1884
Charles J. O'Hagan, M.D., President	Greenville	State Society	1878 to 1882
George A. Foote, M.D.	Warrenton	State Society	1878 to 1882
Marcellus Whitehead, M.D.	Salisbury	State Society	1878 to 1880
R. L. Payne, M.D.	Lexington	State Society	1878 to 1880
H. G. Woodfin, M.D.	Franklin	Gov. Z. B. Vance	1878 to 1880
A. R. Ledeux, Chemist	Chapel Hill	Gov. Z. B. Vance	1878 to 1880
William Cain, Civil Engineer	Charlotte	Gov. Z. B. Vance	1878 to 1880
R. L. Payne, M.D.	Lexington	State Society	1881 to 1887
M. Whitehead, M.D., President	Salisbury	State Society	1881 to 1884
J. M. Lyle, M.D.	Franklin	Gov. T. J. Jarvis	1881 to 1883
William Cain, Civil Engineer	Charlotte	Gov. T. J. Jarvis	1881 to 1883
W. G. Simmons, Chemist	Wake Forest	Gov. T. J. Jarvis	1881 to 1883
J. W. Jones, M.D., President	Wake Forest	State Society	1883 to 1889
John McDonald, M.D.	Washington	State Society	1883 to 1889
S. H. Lyle, M.D.	Franklin	Gov. T. J. Jarvis	1883 to 1885
W. G. Simmons, Chemist	Wake Forest	Gov. T. J. Jarvis	1883 to 1885
Arthur Winslow, Civil Engineer	Raleigh	Gov. T. J. Jarvis	1883 to 1886
R. H. Lewis, M.D.	Raleigh	State Board of Health	1884 to 1886
Thomas F. Wood, M.D., Secretary	Wilmington	State Society	1885 to 1887
William D. Hillard, M.D.	Asheville	State Society	1885 to 1891
Arthur Winslow, Civil Engineer	Raleigh	Gov. A. M. Scales	1885 to 1891
W. G. Simmons, Chemist	Wake Forest	Gov. A. M. Scales	1885 to 1887
J. H. Tucker, M.D.	Henderson	Gov. A. M. Scales	1885 to 1887
R. H. Lewis, M.D., Secretary	Raleigh	State Society	1887 to 1888
H. T. Bahnson, M.D., President	Winston	State Society	1887 to 1888
Arthur Winslow, Civil Engineer	Raleigh	Gov. A. M. Scales	1887 to 1889
W. G. Simmons, Chemist	Wake Forest	Gov. A. M. Scales	1887 to 1889
J. H. Tucker, M.D.	Henderson	Gov. A. M. Scales	1888 to 1891
J. L. Ludlow, Civil Engineer	Winston	Gov. A. M. Scales	1888 to 1891
J. H. Tucker, M.D.	Henderson	Gov. D. G. Fowle	1888 to 1891
F. P. Venable, Ph. D., Chemist	Chapel Hill	Gov. D. G. Fowle	1889 to 1893
J. L. Ludlow, Civil Engineer	Winston	Gov. D. G. Fowle	1889 to 1892
J. A. Hodges, M.D.	Fayetteville	State Society	1889 to 1893
J. M. Baker, M.D.	Tarboro	State Society	1891 to 1893
J. H. Tucker, M.D.	Henderson	Gov. T. M. Holt	1891 to 1893
F. P. Venable, Ph. D., Chemist	Chapel Hill	Gov. T. M. Holt	1891 to 1892
J. L. Ludlow, Civil Engineer	Winston	Gov. T. M. Holt	1891 to 1897
Thomas F. Wood, M.D., Secretary*	Wilmington	State Society	1892 to 1897
George G. Thomas, M.D., President	Wilmington	State Board of Health	1891 to 1895
S. Westray Battle, M.D.	Asheville	State Society	1892 to 1895
W. H. Harrell, M.D.	Williamston	State Society	1893 to 1895
John Whitehead, M.D.	Salisbury	State Board of Health	1893 to 1895
W. H. G. Lucas	White Hall	Gov. Elias Carr	1893 to 1895
F. P. Venable, Ph. D., Chemist	Chapel Hill	Gov. Elias Carr	1893 to 1895
John C. Chase, Civil Engineer	Wilmington	Gov. Elias Carr	1893 to 1895
R. H. Lewis, M.D., Secretary	Raleigh	Gov. Elias Carr	1894 to 1897
W. P. Beall, M.D.	Greensboro	Gov. Elias Carr	1895 to 1897
W. J. Lumsden, M.D.	Elizabeth City	Gov. Elias Carr	1895 to 1897
John Whitehead, M.D.	Salisbury	State Society	1895 to 1897
W. H. Harrell, M.D.	Williamston	State Society	1895 to 1897
W. P. Beall, M.D.	Greensboro	Gov. Elias Carr	1895 to 1897
R. H. Lewis, M.D., Secretary	Raleigh	Gov. Elias Carr	1895 to 1897
F. P. Venable, Ph. D., Chemist	Chapel Hill	Gov. Elias Carr	1897 to 1899
John C. Chase, Civil Engineer	Wilmington	Gov. Elias Carr	1897 to 1899
Charles J. O'Hagan, M.D.	Greenville	Gov. D. L. Russell	1897 to 1899
John D. Spicer, M.D.	Goldsboro	Gov. D. L. Russell	1897 to 1899
J. L. Nicholson, M.D.	Richlands	Gov. D. L. Russell	1897 to 1899
R. H. Lewis, M.D., Secretary	Raleigh	Gov. D. L. Russell	1899 to 1901
A. W. Shaffer, Civil Engineer	Raleigh	Gov. D. L. Russell	1899 to 1901
Charles J. O'Hagan, M.D.	Greenville	Gov. D. L. Russell	1899 to 1901
J. L. Nicholson, M.D.	Richlands	Gov. D. L. Russell	1899 to 1901
Albert Anderson, M.D.	Wilson	Gov. D. L. Russell	1899 to 1901
George G. Thomas, M.D., President	Wilmington	State Society	1899 to 1901
S. Westray Battle, M.D.	Asheville	State Society	1899 to 1901
H. W. Lewis, M.D.	Jackson	State Society	1899 to 1901
H. H. Dodson, M.D.	Milton	State Society	1899 to 1901

*Died in 1892, leaving a five-year unexpired term, which was filled by the Board.

MEMBERS STATE BOARD OF HEALTH—Continued

Name	Address	Appointed by	Term
R. H. Lewis, M.D., Secretary	Raleigh	Gov. C. B. Aycock	1901 to 1907
W. P. Ivey, M.D.	Lenoir	Gov. C. B. Aycock	1901 to 1907
George G. Thomas, M.D., President	Wilmington	Gov. C. B. Aycock	1901 to 1905
Francis Duffy, M.D.	New Bern	Gov. C. B. Aycock	1901 to 1905
J. L. Ludlow, Civil Engineer	Winston	Gov. C. B. Aycock	1901 to 1905
S. Westray Battle, M.D.	Asheville	State Society	1901 to 1907
H. W. Lewis, M.D.	Jackson	State Society	1901 to 1907
W. H. Whitehead, M.D.	Rocky Mount	State Society	1901 to 1905
J. L. Nicholson, M.D.	Richlands	State Society	1901 to 1905
J. L. Ludlow, Civil Engineer	Winston	Gov. C. B. Aycock	1903 to 1909
J. Howell Way, M.D.	Waynesville	Gov. R. B. Glenn	1905 to 1911
W. O. Spencer, M.D.	Winston	Gov. R. B. Glenn	1905 to 1911
George G. Thomas, M.D., President	Wilmington	State Society	1905 to 1911
Thomas E. Anderson, M.D.	Statesville	State Society	1905 to 1911
R. H. Lewis, M.D.	Raleigh	Gov. R. B. Glenn	1907 to 1913
E. C. Register, M. D.	Charlotte	Gov. R. B. Glenn	1907 to 1913
David T. Tayloe, M.D.	Washington	State Society	1907 to 1909
James A. Burroughs, M.D.[1]	Asheville	State Society	1907 to 1913
J. E. Ashcraft, M.D.	Monroe	State Board of Health	1909 to 1913
J. L. Ludlow, Civil Engineer	Winston-Salem	Gov. W. W. Kitchin	1909 to 1913
J. Howell Way, M.D., President	Waynesville	Gov. W. W. Kitchin	1911 to 1917
W. O. Spencer, M.D.	Winston-Salem	Gov. W. W. Kitchin	1911 to 1917
Thomas E. Anderson, M.D.	Statesville	State Society	1911 to 1917
Charles O'H. Laughinghouse, M.D.	Greenville	State Society	1911 to 1917
R. H. Lewis, M.D.	Raleigh	Gov. Locke Craig	1913 to 1919
Edw. J. Wood, M.D.	Wilmington	Gov. Locke Craig	1913 to 1919
A. A. Kent, M.D.[2]	Lenoir	State Society	1913 to 1915
Cyrus Thompson, M.D.	Jacksonville	State Society	1913 to 1919
Fletcher R. Harris, M.D.	Henderson	State Board of Health	1913 to 1919
J. L. Ludlow, Civil Engineer	Winston-Salem	Gov. Locke Craig	1915 to 1921
J. Howell Way, M.D., President	Waynesville	Gov. T. W. Bickett	1917 to 1923
E. C. Register, M.D.[1]	Charlotte	Gov. T. W. Bickett	1917 to 1923
Thomas E. Anderson, M.D.	Statesville	State Society	1917 to 1923
Charles O'H. Laughinghouse, M.D.	Greenville	State Society	1917 to 1923
Fletcher R. Harris, M.D.[3]	Henderson	State Society	1919 to 1923
A. J. Crowell, M.D.	Charlotte	Gov. T. W. Bickett	1919 to 1923
Chas. E. Waddell, C.E.[4]	Asheville	Gov. C. Morrison	1921 to 1923
Cyrus Thompson, M.D.	Jacksonville	State Society	1919 to 1925
R. H. Lewis, M.D.	Raleigh	Gov. T. W. Bickett	1919 to 1925
E. J. Tucker, D.D.S.	Roxboro	Gov. T. W. Bickett	1923 to 1925
J. Howell Way, M.D., President	Waynesville	Gov. C. Morrison	1923 to 1929
A. J. Crowell, M.D.	Charlotte	Gov. C. Morrison	1923 to 1929
James P. Stowe, Ph. G.	Charlotte	Gov. C. Morrison	1923 to 1927
D. A. Stanton, M.D.	High Point	State Board of Health	1923 to 1925
Thomas E. Anderson, M.D.	Statesville	State Society	1923 to 1929
Charles O'H. Laughinghouse, M.D.[5]	Greenville	State Society	1923 to 1926
Cyrus Thompson, M.D.[1]	Jacksonville	State Society	1925 to 1931
D. A. Stanton, M.D.	High Point	State Society	1925 to 1931
R. H. Lewis, M.D.[1]	Raleigh	Gov. A. W. McLean	1925 to 1931
Jno. B. Wright, M.D.[6]	Raleigh	Gov. A. W. McLean	1926 to 1931
E. J. Tucker, D.D.S.[6]	Roxboro	Gov. A. W. McLean	1925 to 1931
W. S. Rankin, M.D.[4]	Charlotte	State Board of Health	1926 to 1927
L. E. McDaniel, M.D.	Jackson	State Board of Health	1927 to 1929
Chas. C. Orr, M.D.	Asheville	Gov. A. W. McLean	1927 to 1929
Thomas E. Anderson, M.D.[6]	Statesville	State Society	1929 to 1935
L. E. McDaniel, M.D.[6]	Jackson	State Society	1929 to 1935
James P. Stowe, Ph. G.[6]	Charlotte	Gov. A. W. McLean	1927 to 1933
A. J. Crowell, M.D.[6]	Charlotte	Gov. O. Max Gardner	1929 to 1935
J. M. Parrott, M.D.	Kinston	State Board of Health	1930 to 1931
Chas. C. Orr, M.D.[6]	Asheville	Gov. O. Max Gardner	1929 to 1935
J. M. Parrott, M.D.[5]	Kinston	State Society	1931 to 1935
C. V. Reynolds, M.D.	Asheville	State Society	1931 to 1935
L. B. Evans, M.D.	Windsor	State Society	1931 to 1933
S. D. Craig, M.D.	Winston-Salem	State Society	1931 to 1933
John T. Burrus, M.D.	High Point	Gov. O. Max Gardner	1931 to 1933
J. N. Johnson, D.D.S.	Goldsboro	Gov. O. Max Gardner	1931 to 1933
J. A. Goode, Ph.G.	Asheville	Gov. O. Max Gardner	1931 to 1933
H. L. Large, M.D.	Rocky Mount	Gov. O. Max Gardner	1931 to 1935
H. G. Baity, C.E.	Chapel Hill	Gov. O. Max Gardner	1931 to 1935
Grady G. Dixon, M.D.[7]	Ayden	Ex. Com. State Society	1931 to 1932
Grady G. Dixon, M.D.[7]	Ayden	State Society	1932 to 1935

[1]Died leaving unexpired term.
[2]Resigned to become member of General Assembly.
[3]Resigned to become Health Officer Vance County.
[4]Resigned.
[5]Resigned to become Secretary of State Board of Health.
[6]Term terminated account reorganization State Board of Health by General Assembly.
[7]To fill vacancy caused by resignation of Dr. J. M. Parrott.

STATUS OF SOCIETY MEMBERSHIP BY COUNTIES FOR YEARS 1918-1932

County	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932
Alamance-Caswell **a**	10	15	27	27	31	27	27	25	27	30	30	32	33	33	32
Alexander **b**	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Alleghany	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....
Anson	1	3	2	1	2	12	12	11	10	6	8	8	6	6	4
Ashe	15	8	7	5	9	8	6	10	6	8	6	5	5	5	4
Avery	7	6	4	5	4	5	5	5	5	6	6	6	5	5	4
Beaufort	11	10	14	12	14	17	14	17	17	17	17	16	18	15	15
Bertie	5	5	10	9	12	10	9	9	8	8	8	6	7	9	7
Bladen	8	9	8	7	7	4	3	8	7	8	8	8	8	8	8
Brunswick	2	2	2	1	1	1	1	1	1	1	4	6	2	2	2
Buncombe	76	81	83	92	96	99	105	97	102	118	120	118	113	112	105
Burke	17	6	11	12	11	15	13	14	11	11	12	12	17	17	17
Cabarrus	22	19	20	19	21	23	19	21	21	22	27	27	23	20	20
Caldwell	13	12	10	10	12	12	10	11	14	15	15	13	15	14	12
Camden **c**	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Carteret	4	7	9	9	8	12	10	10	12	12	11	11	12	12	12
Caswell **d**	1	3	2	2	1	1	1	2	....	....	....	....	....	....	....
Catawba	....	5	18	16	22	20	19	16	16	21	16	17	13	13	16
Chatham	11	7	10	11	6	7	9	9	7	9	8	9	9	4	3
Cherokee	10	6	10	10	10	10	9	10	9	8	10	10	10	9	8
Chowan-Perquimans	....	6	8	7	6	7	8	5	9	10	9	7	8	6	7
Clay **e**	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Cleveland	16	17	19	16	19	18	18	17	19	20	20	22	23	19	22
Columbus	1	6	10	8	9	14	11	12	14	15	14	14	15	10	8
Craven	7	7	6	6	8	10	12	14	16	17	15	14	13	13	14
Cumberland	16	15	20	24	23	22	32	31	28	29	28	22	26	23	21
Currituck	1	5	5	5	5	4	4	4	4	3	2	1	1	1	1
Dare **f**	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Davidson	20	19	18	16	18	18	22	20	19	19	18	17	16	17	17
Davie	4	4	4	4	4	6	4	5	4	5	5	5	5	5	6
Duplin	9	9	10	12	11	12	12	13	13	13	9	11	9	11	7
Durham-Orange	35	33	45	40	43	43	47	53	60	64	63	65	67	76	77
Edgecombe-Nash	10	7	15	15	15	12	10	11	12	12	12	7	10	43	39
Forsyth	37	37	57	62	60	59	62	63	64	66	74	59	70	66	69
Franklin	11	11	12	10	12	12	12	12	12	10	12	11	10	9	7
Gaston	27	26	35	38	39	40	40	39	40	38	39	39	36	33	37
Gates	....	1	....	....	....	1	1	1	....	....	1	2	2	2	2
Graham	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Granville	14	14	15	14	14	12	13	13	12	12	14	13	13	13	12
Greene	2	5	6	7	7	5	6	5	5	5	5	5	5	5	5
Guilford	67	72	77	78	80	87	93	107	112	119	123	130	124	124	118
Halifax	1	7	28	24	24	18	21	20	16	14	17	17	16	15	14
Harnett	15	14	16	15	16	15	15	13	12	16	16	15	14	13	15
Haywood	9	9	11	10	12	13	13	14	14	13	8	14	14	12	13
Henderson **j**	....	....	....	....	....	....	....	....	17	19	16	16	19	14	12
Henderson-Polk **g**	11	13	15	13	13	13	13	14	....	....	....	....	....	....	....
Hertford	10	10	10	10	10	10	10	8	8	7	7	6	5	5	5
Hoke	11	10	10	8	6	8	9	11	10	11	12	14	14	14	12
Hyde	1	2	1	1	2	1	2	1	1	1	1	1	1	1	1
Iredell-Alexander	11	11	21	18	20	19	20	26	29	34	37	39	38	38	39
Jackson	2	5	5	6	6	6	8	7	7	6	5	6	6	3	7
Johnston	16	24	22	23	26	25	25	24	28	24	23	18	23	25	20
Jones	....	....	....	....	1	2	1	4	4	3	3	3	3	3	3
Lee	6	8	8	8	10	10	11	13	13	13	14	16	13	11	13
Lenoir	15	17	22	19	20	17	20	18	20	22	23	20	22	17	19
Lincoln	11	15	16	14	13	14	16	11	11	12	13	14	13	10	12
Macon-Clay	6	6	6	7	7	7	7	6	8	8	9	6	8	4	3
Madison	....	11	11	12	8	11	11	11	11	5	12	7	5	3	4
Martin	12	11	16	14	12	13	10	10	10	10	10	10	8	7	4
McDowell	7	6	6	5	5	6	7	8	7	8	7	9	12	10	10
Mecklenburg	49	97	104	107	110	115	109	121	117	104	119	125	128	124	117
Mitchell-Watauga	....	4	5	8	10	10	7	7	8	7	9	8	6	5	5
Montgomery	8	6	8	11	10	9	9	8	9	9	10	11	9	10	9
Moore	15	16	16	17	21	20	20	19	21	17	20	22	17	21	21
Nash **m**	21	26	25	26	30	30	33	34	32	31	30	30	33	....	....
New Hanover	29	38	40	46	51	46	44	42	40	41	38	32	38	37	35
Northampton	11	13	10	11	11	10	10	10	11	9	9	6	3	4	5
Onslow	7	9	8	7	7	5	6	6	5	5	6	5	5	5	6
Orange **h**	....	....	....	6	....	....	....	....	....	....	....	....	....	....	....
Pamlico	4	4	5	6	5	5	4	5	5	5	5	5	4	4	4
Pasquotank-Camden-Dare	16	15	16	11	19	18	17	18	19	18	16	14	17	14	11
Pender	4	3	1	1	2	2	1	1	1	1	1	1	1	1	1
Perquimans **i**	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Person	....	12	10	11	10	10	10	8	7	7	7	6	6	6	6
Pitt	5	18	24	19	24	23	24	26	24	26	31	24	27	27	20
Polk **j**	....	....	....	....	....	....	....	....	5	6	6	6	6	5	7

STATUS OF MEMBERSHIP BY COUNTIES—Continued

County	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932
Randolph	11	12	13	15	14	14	13	14	12	10	11	10	8	7	14
Richmond	11	13	12	14	13	14	16	19	18	18	18	14	17	17	15
Robeson	8	31	35	34	33	27	29	30	31	28	28	21	24	21	22
Rockingham	15	16	20	23	25	21	23	26	23	24	21	20	24	24	21
Rowan	22	24	28	31	32	32	36	40	40	40	42	35	35	39	33
Rutherford	17	18	20	12	18	22	21	21	22	24	22	22	22	21	21
Sampson	10	11	13	14	12	13	17	15	14	13	13	10	13	13	14
Scotland	10	9	10	12	12	12	12	12	12	12	12	12	10	11	11
Stanly	11	11	15	12	11	12	15	14	13	15	14	14	16	15	13
Stokes	5	5	10	6	12	9	10	10	5	7	8	6	2	6	6
Surry	24	28	28	25	25	24	26	22	17	20	22	20	20	13	17
Swain	7	2	3	1	4	3	1	1	1	....	....	....	....	....	....
Transylvania	....	1	1	1	5	6	4	8	4	5	7	4	2	2	1
Tyrrell k	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Union	15	14	16	17	17	18	18	19	19	16	16	14	13	10	9
Vance	4	5	11	11	10	10	12	11	12	11	11	11	12	8	7
Wake	56	81	68	73	76	85	73	78	79	78	80	84	94	87	86
Warren	6	3	8	8	7	7	6	6	6	6	6	6	6	6	6
Washington-Tyrrell	....	....	....	10	9	9	9	8	8	6	6	5	3	3	3
Watauga l	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Wayne	18	27	28	24	33	32	29	32	34	32	38	38	38	30	32
Wilkes	8	10	10	11	10	10	10	10	9	14	11	10	10	11	10
Wilson	21	25	29	31	28	31	31	32	34	34	35	31	28	28	22
Yadkin	....	10	2	5	4	3	2	3	2	2	3	5	10	....	4
Yancey	....	3	3	1	1	1	1	1	2	7	5	3	4	1	1
Totals	1087	1306	1497	1491	1571	1592	1606	1657	1666	1691	1738	1669	1694	1600	1559

a The figures for 1926 are for Alamance-Caswell; for the other years, for Alamance only; **b** See Iredell-Alexander: **c** See Pasquotank-Camden-Dare; **d** For 1926, see Alamance-Caswell; **e** See Macon-Clay; **f** see Pasquotank-Camden-Dare; **g** See Henderson or Polk for years after 1925; **h** See Durham-Orange; **i** See Chowan-Perquimans; **j** See Henderson-Polk for 1912-1925; **k** See Washington-Tyrrell; **l** See Mitchell-Watauga; **m** See Edgecombe-Nash.

HONORARY FELLOWS, MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

Abel, J. F.....Waynesville
Abernathy, H. N.....Charlotte
*Achorn, John W.....Pinebluff
Adams, C. A.....Durham
Adams, Charles E.....Gastonia
Adams, M. R.....Statesville
*Alexander, Annie L.....Charlotte
Alexander, Jas. R.....Charlotte
*Allen, Rufus L.....Waynesville
*Alston, B. P.....Epsom
*Ambler, C. P.....Asheville
Anders, McT. G.....Gastonia
Anderson, Albert .....Raleigh
Anderson, Chas. A.....Burlington
Anderson, Thos. Eli.....Statesville
*Archery, L. M.....Concord
*Asbury, F. E.....Asheboro
Ashecraft, J. E.....Fayetteville
Ashworth, Benj. L.....Marion
Ashworth, W. C.....Greensboro
*Attmore, Geo. S.....Stonewall
Averitt, K. G.....Cedar Creek
*Bahnson, H. T.....Winston-Salem
Baker, J. M.....Tarboro
Banner, Chas. W.....Greensboro
*Barrier, P. A.....Mt. Pleasant
Bass, H. H.....Durham
Battle, J. T. J.....Greensboro
*Battle, Kemp P.....Raleigh
*Battle, S. W.....Asheville
*Beall, Wm. P.....Greensboro
*Bellamy, W. J. H.....Wilmington
Boddie, N. P.....Durham
*Bolton, Mahlon.....Rich Square
*Booth, Samuel D.....Oxford
Brown, G. A.....Mt. Ulla
Brown, J. S., Sr.....Hendersonville
*Brownson, W. C.....Asheville
*Bullock, D. W.....Wilmington
Bullock, Thomas C.....Autryville
Burrus, John T.....High Point
Bynum, John .....Winston-Salem
*Caldwell, D. G.....Concord
Carroll, E. D. Dixon.....Raleigh
*Cheatham, Archibald .....Durham
Cheesborough, Thos. P.....Asheville
*Clark, G. L.....Clarkton
Cobb, Wm. H., Jr.....Goldsboro
Cotton, Clyde E.....Asheville
Council, J. B.....Salisbury
*Covington, J. M.....Wadesboro
Cox, E. L.....Jacksonville
*Croom, J. D.....Maxton
Crowell, A. J.....Charlotte
Crowell, L. A.....Lincolnton
Daligny, Charles .....Troy
*Dalton, David N.....Winston-Salem
Davis, Thomas W....Winston-Salem
Davidson, John E. S.....Charlotte
DeArmon, J. McC.....Charlotte
*Denny, Wm. W.....Pink Hill
Dickinson, E. T.....Wilson
*Dillard, Richard, Jr.....Edenton
Dixon, Guy E.....Hendersonville
Dixon, Wm. H.....Kinston
*Dodson, H. H.....Greensboro
*Duffy, Charles.....New Bern
*Duffy, Francis .....New Bern
Eddleman, H. M.....Gastonia
Edgerton, Jas. L.....Hendersonville
*Edwards, G. C.....Hookerton
Edwards, J. D.....Siler City
Ellis, R. C.....Shelby
*Faison, I. W.....Charlotte
*Faison, Wm. W.....Goldsboro
*Fletcher, M. H.....Asheville
Flippin, Samuel T.....Siloam
*Fox, M. F.....Guilford College
*Freeman, Richard A.....Burlington
Galloway, W. C.....Wilmington
Garrison, David A.....Gastonia
Gibbon, Robert L.....Charlotte
*Gilmer, Chas. S.....Greensboro, R. 6
Gilreath, Frank H....N. Wilkesboro
Goley, Wm. R.....Graham
*Goodman, E. G.....Lanvale
Goodwin, A. W.....Raleigh
Gouger, Geo. J.....Concord
Gove, Anna M.....Greensboro
Grady, James C.....Kenly
Grady, Wm. Earle.....Tryon
*Graham, Joseph .....Charlotte
*Graham, Wm. A.....Charlotte
*Griffin, J. A.....Clayton

* Deceased.

Griggs, W. T.....Poplar Branch
*Hall, Wright .....Wilmington
*Halsey, B. F.....Roper
Hardy, Ira M.....Kinston
*Hargrove, R. H. .....Robersonville
Harris, F. R.....Henderson
*Harriss, I. A.....Weaverville
Harrison, Edmund .....Greensboro
Harris, A. H.....Wilmington
Hays, Benj. K.....Oxford
*Haywood, F. J.....Raleigh
*Haywood, Hubert, Sr. .....Raleigh
*Herring, B. S.....Wilson
*Hicks, Wm. N.....Durham
*Hicks, Romeo .....Henrietta
Highsmith, Chas. .....Dunn
Highsmith, J. F.....Fayetteville
*Hill, L. H.....Germantown
Holloway, Robt. L....West Durham
Holt, Wm. P., Sr.....Erwin
*Holt, Wm. T.....Greensboro
Houck, Albert F.....Lenoir
Hubbard, C. C.....Farmer
*Hudson, Wm. L.....Dunn
*Hughes, Francis W.....New Bern
Hunter, L. W.....Charlotte
Ingram, Chas. B.....Mt. Gilead
*Irwin, J. R.....Charlotte
Jenkins, Chas. L.....Raleigh
Jewett, Robert D.....Wilmington
Johnson, N. M.....Durham
*Jones, Clara E.....Goldsboro
Jones, A. G.....Walnut Cove
Jordan, Chas. S.....Asheville
Jordan, T. M.....Raleigh
Judd, J. M.....Varina
Julian, Charles A.....Greensboro
Kent, Alfred A...Winter Park, Fla.
Kerr, J. Edwin.....Winston-Salem
*Knight, J. B. H.....Williamston
Knight, Wm. P.....Greensboro
Knox, A. W.....Raleigh
Koonce, S. E.....Wilmington
Lamm, Isaac W.....Raleigh
*Laughinghouse, Chas. O'H...Raleigh
*Leggett, Kenelm .....Hobgood
Lewis, Geo. W.....Wilson
Lewis, H. W.....Jackson
*Lewis, R. H.....Raleigh
Linville, A. Y.....Winston-Salem
*Long, Benj. L.....Hamilton
*Long, Geo. W.....Graham
Long, H. F.....Statesville
*Long, J. W.....Greensboro
*Love, W. J.....Wilmington
Lyle, S. H.....Franklin
McAnally, W. J.....High Point
McBrayer, L. B.....Southern Pines
McCain, Wm. R.....High Point
McCampbell, John .....Morganton
*McDonald, A. D.....Wilmington
McGeachy, R. S.....Greenville
McGee, J. W.....Raleigh
*McKay, A. M.....Summerville
*McKay, John A.....Buies Creek
McKay, Joseph F.....Buies Creek
*McKee, James .....Raleigh
*McKenzie, W. W.....Salisbury
McLaughlin, J. E.....Statesville
McMillan, Benj. F.....Red Springs
*McMillan, J. D.....Lumberton
*McMillan J. L.....Red Springs
McMillan, W. D.....Wilmington
*McNeill, J. W.....Fayetteville
*McNeill, Wm. M.....Buies Creek
Manning, I. H.....Chapel Hill
Manning, J. M.....Chapel Hill
Matthews, Jas. O.....Clinton
Menzies, H. C.....Hickory
*Michaux, E. R.....Greensboro
*Miller, J. F.....Goldsboro
*Minor, Chas. L.....Asheville
*Misenheimer, C. A.....Charlotte
*Misenheimer, Theo. F.....Morven
*Monroe, W. A.....Sanford
*Montgomery, John C.....Charlotte
Moore, C. E.....Wilson
*Moore, Edwin G.....Elm City
Morris, J. A.....Oxford
Moseley, Chas. W.....Greensboro
Munroe, J. P.....Charlotte
Myers, John Q.....Charlotte
Nelson, R. J.....Robersonville
Nichols, Rhodes E.....Durham
*Nicholson, J. L.....Richland
Nicholson, P. A.....Washington
*Nicholson, Sam T.....Washington
Nisbet, W. O.....Charlotte

* Deceased.

*Noble, R. J.....Selma
Nobles, Jos. E.....Greenville
Parker, G. E.....Benson
Parrott, J. M.....Kinston
Parrott, Wm. Thomas.....Kinston
*Pate, Wm. T.....Gibson
*Pemberton, Wm. D.....Concord
Person, James B., Jr.....Selma
*Perry, M. P.....Macon
Pfohl, Samuel F.....Winston-Salem
*Pharr, T. F.....Concord
*Pharr, Wm. W.....Charlotte
*Phillips, Matthew D.....Dalton
*Picot, L. J.....Littleton
Pope, Henry T.....Lumberton
Pressly, G. W.....Charlotte
*Prince, D. M.....Laurinburg
Rankin, W. S.....Charlotte
Redding, Alex H.....Asheboro
*Register, Edw. C.....Charlotte
Reid, Geo. P.....Forest City
Reitzel, Claude E.....High Point
Reynolds, C. V.....Asheville
Ricks, Leonard E.....Fairmont
*Ritter, F. W.....Moyock
*Roberson, Chas.....Greensboro
Rodman, J. C.....Washington
Rodwell, J. W.....Mocksville
Rogers, Wiley A.....Franklin
Royster, H. A.....Raleigh
*Royster, W. I.....Raleigh
Sawyer, C. J.....Windsor
*Schaub, O. P.....Winston-Salem
Schonwald, J. T.....Wilmington
Sevier, D. E.....Asheville
Sevier, J. T.....Asheville
*Schaffner, J. F., Sr...Winston-Salem
Shamburger, J. B.....Star
Shields, H. B.....Carthage
Sikes, G. L.....Salemburg
*Sikes, G. T.....Creedmoor
*Smith, J. B.....Pilot Mountain
Smith, R. A.....Goldsboro
Smoot, J. E.....Concord
*Snipes, E. P.....Jonesboro
Spainhour, Ellis H...Winston-Salem
*Speight, R. H., Sr.....Whitakers
Spencer, W. O.....Winston-Salem
Stamps, Thos.....Lumber Bridge
Stanton, D. A.....High Point
*Stevens, J. A.....Clinton
Stevens, M. L.....Asheville
Stewart, H. D.....Monroe
Stokes, Jas. Ernest.....Salisbury
Street, M. E.....Glendon
Strickland, Edw. F...Winston-Salem
Stringfield, Thos.....Waynesville
Strong, Chas. Moore.....Charlotte
Summerell, E. M.....China Grove
*Summers, Chas. L....Baltimore, Md. (Forsyth Co.)
Tayloe, D. T., Sr.....Washington
*Taylor, I. M.....Morganton
Taylor, Wm. L.....Oxford
Tennent, G. S.....Asheville
*Thomas, G. G.....Wilmington
*Trantham, H. T.....Salisbury
*Tull, Henry.....Kinston
Van Poole, C. M.....Salisbury
Vestal, W. J.....Lexington
*Von Ruck, Karl.....Asheville
Walker, H. D.....Elizabeth City
*Ward, W. H.....Plymouth
*Way, J. Howell.....Waynesville
Weaver, H. B.....Asheville
Wessell, Jno. C.....Wilmington
*Wharton, L. D.....Smithfield
Whisnant, A. M.....Charlotte
*Whitaker, R. A.....Kinston
*White, J. W.....Wilkesboro
*Whitehead, John.....Salisbury
*Whitehead, W. H.....Rocky Mount
Whitfield, Wm. Cobb.....Grifton
*Whittington, W. P.....Asheville
Whittington, Wm. W.....Snow Hill
Williams, John D....Guilford Station
*Williams, J. H.....Asheville
Wilson, A. R.....Greensboro
Wood, J. W.....Boiling Springs
Wright, Jno. B.....Raleigh
Yarborough, Richard F....Louisburg
*Young, R. S.....Concord

* Deceased.

HONORARY MEMBERS, MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

*L. McL. Tiffany.....Baltimore, Md.
*W. W. Keen.....Philadelphia, Pa.
J. Allison Hodges.....Richmond, Va.
*R. L. Payne.....Norfolk, Va.
*J. N. McCormack.....Bowling Green, Ky.
R. L. Payne, Jr.....Norfolk, Va.
*J. L. Ludlow, C.E.....Winston-Salem
Paul V. Anderson.....Richmond, Va.
Stuart McGuire.....Richmond, Va.
William J. Mayo.....Rochester, Minn.
William Seaman Bainbridge.....New York, N. Y.
William Sharpe.....New York, N. Y.
William McKim Marriott.....St. Louis, Mo.
James K. Hall.....Richmond, Va.

* Deceased.

OFFICERS, 1931-1933

OFFICERS, 1931-1932

President—Dr. M. L. Stevens.....Asheville
President-elect—Dr. John B. Wright.....Raleigh
First Vice-President—Dr. C. W. Banner.....Greensboro
Second Vice-President—Dr. W. W. Sawyer.....Elizabeth City
Secretary-Treasurer—Dr. L. B. McBrayer (1931-1934).....Southern Pines

OFFICERS, 1932-1933

President—Dr. John B. Wright.....Raleigh
President-elect—Dr. I. H. Manning.....Chapel Hill
First Vice-President—Dr. J. R. McCracken.....Waynesville
Second Vice-President—Dr. W. G. Suiter.....Weldon
Secretary-Treasurer—Dr. L. B. McBrayer (1931-1934).....Southern Pines

COUNCILLORS, 1931-1934

First District—Dr. C. B. Williams.....Elizabeth City
Second District—Dr. K. B. Pace.....Greenville
Third District—Dr. J. T. Hoggard.....Wilmington
Fourth District—Dr. C. F. Strosnider.....Goldsboro
Fifth District—Dr. A. B. Holmes.....Fairmont
Sixth District—Dr. W. M. Coppridge.....Durham
Seventh District—Dr. Addison G. Brenizer.....Charlotte
Eighth District—Dr. Thos. C. Redfern.....Winston-Salem
Ninth District—Dr. M. R. Adams.....Statesville
Tenth District—Dr. Joseph B. Greene.....Asheville

CHAIRMEN OF SECTIONS, 1932-1933

Public Health and Education—Dr. Z. V. Moseley.....Kinston
Surgery—Dr. Wm. H. Sprunt.....Winston-Salem
Ophthalmology and OtoRhinoLaryngology—Dr. C. R. Reaves.....Greensboro
Gynecology and Obstetrics—Dr. Richard W. Spicer.....Winston-Salem
Pediatrics—Dr. C. A. Street.....Winston-Salem
Practice of Medicine—Dr. Paul Whitaker.....Kinston

DELEGATES TO AMERICAN MEDICAL ASSOCIATION, 1932-1934

Dr. M. L. Stevens, 1932 and 1933-1934 inclusive.....Asheville
Dr. J. K. Pepper, 1932 and 1933 inclusive.....Winston-Salem
Dr. T. W. M. Long, 1932 and 1933 inclusive.....Roanoke Rapids

Alternates

Dr. John Q. Meyers, Charlotte for Dr. J. K. Pepper.
Dr. H. A. Roystep, Raleigh for Dr. T. W. M. Long.

DELEGATES TO MEDICAL SOCIETY OF VIRGINIA

Dr. S. A. Malloy.....Yanceyville
Dr. S. G. Jett.....Reidsville
Dr. Bahnson Weathers.....Rosemary
Dr. F. G. Jarman.....Roanoke Rapids
Dr. D. T. Tayloe, Jr.....Washington
Dr. W. W. Sawyer.....Elizabeth City
Dr. H. D. Walker.....Elizabeth City

DELEGATES TO SOUTH CAROLINA MEDICAL SOCIETY

Dr. J. LaB. Ward.....Asheville
Dr. M. S. Broun.....Asheville
Dr. W. F. Elliott.....Lincolnton
Dr. L. N. Patrick.....Gastonia
Dr. Yates W. Faison.....Charlotte
Dr. James W. Gibbon.....Charlotte
Dr. V. K. Hart.....Charlotte

DELEGATES TO STATE DENTAL ASSOCIATION

Dr. David T. Smith.....Durham
Dr. J. T. Burrus.....High Point

COMMITTEES

Medical Society Foundation

Dr. J. P. Matheson, *Chairman,* 1 year.....Charlotte
Dr. M. L. Stevens, 5 years.....Asheville
Dr. L. B. McBrayer, 4 years.....Southern Pines
Dr. J. B. Sidbury, 2 years.....Wilmington
Dr. J. M. Parrott, 3 years.....Raleigh

Obituaries

Dr. C. M. Van Poole.....Salisbury
Dr. R. B. McKnight.....Charlotte
Dr. W. H. Smith.....Goldsboro

Legislation

Dr. B. J. Lawrence.....Raleigh
Dr. T. W. M. Long.....Roanoke Rapids
Dr. J. T. Burrus.....High Point

Moore County Medal

Dr. Jamie W. Dickie, *Chairman*.....Southern Pines
Dr. J. M. Parrott.....Raleigh
Dr. J. Q. Myers.....Charlotte

Committee to Confer With State Nurses Association

Dr. Karl B. Pace.....Greenville
Dr. O. L. McFadyen.....Fayetteville

Committee on Printing

Dr. L. B. McBrayer, *ex-officio*.....Southern Pines
Dr. P. P. McCain.....Sanatorium
Dr. J. W. Dickie.....Southern Pines

Committee on Hospitals

Dr. W. D. James.....Hamlet
Dr. Moir S. Martin.....Mt. Airy
Dr. David T. Tayloe, Jr.....Washington
Dr. E. W. Phifer.....Morganton

Committee to Confer With Like Committee from State Hospital Association

Dr. R. B. Davis, *Chairman*.....Greensboro
Dr. E. S. Bullock.....Wilmington
Dr. William Spicer.....Goldsboro

Board of Medical Examiners of the State of North Carolina 1932-1938

Dr. Ben F. Royal.....Morehead City
Dr. Benj. J. Lawrence.....Raleigh
Dr. F. Webb Griffith.....Asheville
Dr. Hamilton W. McKay.....Charlotte
Dr. J. W. Vernon.....Morganton
Dr. W. H. Smith.....Goldsboro
Dr. K. G. Averitt.....Cedar Creek

State Board of Examiners for Nurses

President, Miss Bessie Chapman, R.N.....Greensboro
Secretary-Treasurer and Educational Director, Miss Lula West, R.N.,..Mt. Airy
Miss Josephine Kerr, R.N.....Charlotte
Dr. D. A. Garrison (from Hospital Association).....Gastonia
Dr. C. H. Peete (from Medical Society, 1931-1934).....Warrenton

Arrangements

Dr. Verne S. Caviness, *Chairman*.....Raleigh
Place of Meeting.....Raleigh
Date.....April 17, 18 and 19, 1933
Headquarters.....Sir Walter Hotel

TRANSACTIONS

OF THE

SEVENTY-NINTH ANNUAL MEETING

OF THE

MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

WINSTON-SALEM, APRIL 18, 19, 20, 1932

MEETINGS OF THE HOUSE OF DELEGATES

MONDAY, APRIL 18TH, 8 P. M.
FIRST SESSION

The first session of the House of Delegates of the Medical Society of the State of North Carolina convened in Lecture Room "B" of the Robert E. Lee Hotel, Winston-Salem, North Carolina, at 8:10 P. M., Dr. M. L. Stevens, Asheville, President of the Society, presiding.

President Stevens: The meeting of the House of Delegates will please come to order.

The Secretary will call the roll.

. . . Secretary McBrayer then called the roll . . .

ROLL CALL

County	*Delegate*
Alamance-Caswell	
Anson	
Ashe	
Avery	
Beaufort	DeWitt Kluttz
Bertie	L. B. Evans
Bladen	
Brunswick	
Buncombe	C. V. Reynolds, A. C. McCall, G. W. Murphy, Paul H. Ringer, S. L. Whitehead
Burke	J. W. Vernon
Cabarrus	
Caldwell	C. R. Hidden
Carteret	K. P. B. Bonner
Catawba	James W. Keever
Chatham	W. Burdette Chapin
Cherokee	

County	*Delegate*
Chowan-Perquimans	
Cleveland	
Columbus	
Craven	
Cumberland	O. L. McFadyen
Currituck	
Davidson	R. G. Jennings
Davie	
Duplin	
Durham-Orange	W. B. McCutcheon, R. L. Felts, W. M. Coppridge
Edgecombe-Nash	J. A. Winstead
Forsyth	J. R. Perkins, W. M. Johnson
Franklin	R. F. Yarborough
Gaston	D. A. Garrison
Gates	Thos. L. Carter
Granville	
Greene	
Guilford	H. B. Hiatt, I. T. Mann, Frank A. Sharpe
Halifax	T. W. M. Long
Harnett	Delegate: J. F. McKay; Alternate: W. P. Holt
Haywood	J. L. Reeves
Henderson	J. H. Woodcock
Hertford	
Hoke	P. P. McCain
Hyde	
Iredell-Alexander	M. R. Adams, Chas. B. Herman
Jackson	
Johnston	F. M. Aycock
Jones	
Lee	
Lenoir	
Lincoln	L. A. Crowell
McDowell	B. L. Ashworth
Macon-Clay	
Madison	
Martin	
Mecklenburg	J. R. Paddison, Thos. N. Reid, R. B. McKnight, James Gibbon, H. L. Newton
Mitchell-Watauga	
Montgomery	
Moore	W. G. McLeod
New Hanover	W. Houston Moore
Northampton	M. H. Sewell
Onslow	
Pamlico	D. A. Dees
Pasquotank-Camden-Dare	C. B. Williams
Pender	
Person	
Pitt	G. G. Dixon

County	*Delegate*
Polk	
Randolph	J. R. Johnson
Richmond	W. D. James
Robeson	A. B. Holmes
Rockingham	John McGehee
Rowan	T. W. Seay
Rutherford	
Sampson	J. Street Brewer
Scotland	E. A. Livingston
Stanly	L. R. Gaskin
Stokes	
Surry	
Swain	
Transylvania	
Union	
Vance	
Wake	C. P. Eldridge, C. E. Cheek, V. M. Hicks, C. C. Carpenter
Warren	W. D. Rogers
Washington-Tyrrell	
Wayne	H. B. Ivey
Wilkes	Fred C. Hubbard
Wilson	L. V. Grady
Yadkin	
Yancey	

. . . At this point Vice-President Banner of Greensboro took the Chair . . .

VICE-PRESIDENT BANNER: The next thing on the program will be the President's Message, Dr. Stevens. (Applause)

PRESIDENT STEVENS: In opening this annual session, I would appear ungrateful indeed if I did not as one of my first acts convey to you my sincere thanks for the trust you have reposed in me in permitting me to preside over your deliberations. I sense deeply the honor and the responsibility, and it will be my earnest effort to acquit myself in a manner that justifies your confidence, and to this end I ask your coöperation.

I deem it proper at this time to call the attention of each of you to the honor and responsibility that is reposed in you as delegates representing your county societies. Collectively you represent the State Medical Society and formulate its policies, its activities and its pronouncements, and the public will judge it by what you do here.

Individually you are the representative or spokesman of a constituent society, whose opinions and wishes you are expected to voice. It, too, will be judged by what you do here. So you also have responsibilities that extend beyond your own personal opinions and acts and are expected to merit the confidence that is reposed in you by discharging those responsibilities creditably. I am sure you will do this.

In the past year one of the most pleasant duties connected with my office was that of visiting some of the county and district societies. My long acquaintance with the members of the profession in the state jus-

tified the high opinion that I held as to their character and attainments. What I saw on these visits enhanced rather than detracted from that high opinion. I saw much evidence of the friendliness and fellowship and coöperation upon which the success of organized medicine depends, and the papers presented on their programs were of such high order that any medical society might well be proud of them.

Since our last meeting several meetings of the Executive Committee have been necessary. The report of the actions of the Committee will be presented in the report of our Secretary, but of the Committee itself I desire to say a word. At each of the meetings I was impressed by the earnest sincerity with which its members discharged the duties that were placed upon them. We were fortunate in having as members of the Committee men who were intensely eager and unmindful of self in conducting the affairs of the Society. A spirit of service characterized the entire personnel of the Committee. To each of them I extend my sincere thanks.

The work of our Secretary also merits comment. For a number of years I have wished that our Society were financially able to employ a full time Secretary and pay him adequately for his service. In the past year I have found that we have a most excellent, experienced, indefatigable full-time Secretary without our having to pay him the adequate salary. (Applause) To him I desire to express my sincere appreciation of and gratitude for his valuable service.

Now I have no special message to present to the House of Delegates, but I do earnestly request your friendly coöperation in facilitating the work that comes before you in order that your recorded actions may fully reflect the wisdom and judgment of the legislative body of our Society. (Applause)

Vice-President Banner: Gentlemen, you have heard this splendid message. What will you do with it?

Secretary McBrayer: I move, Mr. Chairman, that a Committee of three be appointed to take under consideration the message to the House of Delegates and also the address to the Society that will be delivered in the morning by the President, for such action or recommendation as the Committee may see proper.

. . . The motion was seconded . . .

Vice-President Banner: Is there any discussion of the motion? All in favor say "aye"; opposed "no." The motion is carried. I will appoint on that Committee Dr. J. B. Greene, Dr. R. B. Davis and Dr. A. B. Holmes.

. . . President Stevens then resumed the Chair . . .

President Stevens: We will now have the report of our Secretary.

ANNUAL REPORT OF THE SECRETARY-TREASURER

To the House of Delegates of the Medical Society of the State of North Carolina:

We have performed all the duties assigned the Secretary-Treasurer by the Constitution and By-Laws, by this House of Delegates, the Executive Committee and the President and also indicated by good business and professional usages to the best of our ability and the utmost of our power.

The membership at time of going to press with the transactions was 1600 against 1694 for 1930 and 1669 for 1929. One county was not counted at the time because of failure to send proper amount of dues. The total membership for 1931 is 1636.

Membership and Fellowship in the American Medical Association according to the annual report of the Secretary of the American Medical Association, Dr. Olin West, as of March 1st, 1932.

Fellowship in a State Medical Society automatically gives such Fellow membership in the American Medical Association and there are 99,470 of these, but to become a Fellow of the American Medical Association a member must pay annually to the American Medical Association $7.00, which also gives him an annual subscription to the Journal A. M. A. or credit of like amount on an annual subscription to any of the special medical journals published by the A. M. A. This also entitles him to membership in the Scientific Assembly of the A. M. A. Only such are eligible to a seat in the House of Delegates of the A. M. A. Of the Fellows of the A. M. A. Secretary West reports 64,712. From our state March 1st, 1932 we had 1636 members of the A. M. A. with only 751 Fellows. We have frequently elected delegates to the A. M. A. who were not eligible.

On the other hand, we had 330 additional subscribers to the Journal A. M. A. who had never advised the American Medical Association of their desire to be enrolled as Fellows. This makes a total of 1034 subscribers to the Journal A. M. A. from our state. Every subscriber to the Journal in our state, who is not positive that he is listed as a Fellow should write the American Medical Association and ask to be so listed. That is all it costs.

Dr. West says that while there are 159,109 physicians in the United States that we could hardly hope to have more than about 10,000 additional members or a total of 110,000. He deducts the Negro doctors in the South, those who have retired and do not keep up their membership, 11,000 interns who for one reason or another do not join their county and state society until after they finish their internship, and others who are not eligible.

In our state the A. M. A. Directory gives us 2372 physicians. There are a little more than 300 Negro physicians, a few who have been expelled, a few others who are not acceptable, a number of interns who have not yet joined, and quite a number who have retired from practice and for one reason or another do not keep up their membership. Of the 49 deaths during the year now closing, 22 were not Fellows of our Society. So in round numbers, we estimate that there are 1900 physicians in North Carolina who ought to be members of their county and state society. For the last ten years the number of Fellows of this Society has ranged from 1571 in 1922 to a high of 1738 in 1928 and stands at 1636 for 1931, so there are some 250, a little more or a little less, that ought to be brought into their county and state societies, and while the whole county society is responsible for bringing in these 250, the duty devolves upon the Secretary more than any other one member.

Medical Economics

The things studied by committees appointed by the Executive Committee during the past year are: (1) The examination and treatment of children including immunization from six months old, particularly repeaters, by the local medical profession in each and every county. Dr. C. F. Strosnider, Goldsboro, Councillor of the Fourth District is Chairman of this committee. This is a large and important subject and the committee has given much time and study to the problems connected therewith, but has not completed its work, but will be able to report much progress. (2) The care of veterans of all wars in their home hospitals by their home doctors. Dr. A. B. Holmes, Fairmont, Councillor of the Fifth District is Chairman of the committee having this matter in charge. Much work has been done by this committee, two of the members having been to Washington, with every promise of success. Dr. Holmes will present this matter in a paper tomorrow morning. (3) The principle of the wholesale purchasing power of the Fellows of this Society. That this can be made of immense financial value to the Fellows of this Society cannot be gainsaid, that it is as legitimate as buying your coal supply for the winter in one transaction instead of buying by the single ton when needed, there can be no doubt.

The Executive Committee has only gone into four different items: (1) Group insurance against malpractice suits, on which they were able to reduce the annual premium an additional 6% on all policies above $5,000-$15,000, and something like 50% on X-ray coverage. The society has had a group policy of this kind for some years, and secured above mentioned further reductions last year. (2) *Fire Insurance.* This is supposed to return at the end of the premium year a dividend of some 35%. The company recommended by the Executive Committee has written nearly a million dollars of this insurance which will show a saving of some $3,000 in dividends returned at end of insurance period to those buying it. If only half the Fellows use this Fire Insurance and carry the average amount as those who are already using it, the amount of saving will be $32,000.00 to $50,000.00 annually. (3) *Automobile Insurance* of all kinds. Your Secretary is not using the Fire Insurance for the reason that he already had three year policies in force and it wasn't profitable to have these policies cancelled. Many, in fact most of our Fellows have existing contracts. But in the matter of liability and property damage on automobiles, your President, President-elect and Secretary-Treasurer immediately took out policies with the Company recommended by the Executive Committee. The saving to your Secretary on a $25,000-$50,000 policy was 50%. It is well for us to remember that there have been two increases in annual premiums on Automobile Insurance since the legislature adjourned totaling about 80% increase. It is also well to take note of the intense and sustained opposition upon the part of the old line companies to this particular insurance. In addition to the personal canvass of their agents, they are endeavoring to get permission to appear before County Medical Societies, and succeeding in some instances. It would appear to be the part of wisdom, right and self protection of the interest of the members of the County Society who give a representative of the old line com-

panies a hearing, to also invite a representative of the company recommended by the Executive Committee to address them. I am informed that several of the leading lawyers of the state are placing their automobile insurance with our company, and that one agent of an old line company advised his brother to apply for agency connections with this company, because the premiums of the old line companies with their some 80% increase were so unreasonably high that no one could afford to carry it, and most people were refusing to do so. (4) *Group Life Insurance.* This contract offered will not become effective until 75% of our Fellows in the age group, 60 years and under, have made application. While this is a particularly attractive contract for those 35 years of age and above and those who are rated up for any reason, and for those who cannot for some reason secure life insurance at any price, it was my opinion at the beginning, which has since been confirmed, that the 75% could not be secured.

By reference to the minutes of the Executive Committee you will note that these various forms of insurance *recommended* to the Fellows of this Society, and which if used by all the Fellows would show an estimated saving of somewhere between one hundred fifty thousand and a quarter of a million dollars annually, are not compulsory in any sense whatever, it being wholly optional with each individual Fellow as to whether he uses it or does not use it.

It is well also to again call to your attention that your Legislative Committee secured the introduction of a bill in the last General Assembly by one of the physicians who was a member of the lower House, said bill prepared by the Attorney General's office, that would have made possible the securing of Group Insurance by our and such like organizations in its various lines from any company who cared to write it, and our legislative committee was advised that most of them would have jumped at the chance, but members of the legislature connected in one way or another with insurance companies probably aided and abetted by the State Insurance Department or individuals connected therewith, had sufficient power to kill the bill in the committee. Men connected with Insurance Companies are candidates for the next legislature as they have a perfect right to be.

Mentioning again the wholesale purchasing power of our Society, let us say in conclusion that if this subject is studied in a concrete way from year to year as has been done by the Executive Committee during the year now closing, every Fellow will be surprised at the results. And too, let me quote the duty of this House of Delegates. By-Laws Chapter IV, Section 5. It shall consider and advise as to the material interest of the profession.

There are two subjects under intensive study by the Executive Committee which it is estimated will put in the pockets of the Fellows of this Society a quarter of a million dollars annually, which would beyond doubt increase from time to time. However, this half million dollars saved and in real dollars received, is predicated on the assumption that the individual Doctor wants this and further that we, individually and collectively, have the intestinal stamina to stick together and each Fellow do his duty, rather than stand off and throw rocks and cast aspersions on those who have made the half million dollars possible.

This last quarter million dollars is a mere bagatelle compared with the opportunity of leadership made possible for every county society in this state, an opportunity that has too long been neglected by most of our county societies.

The Industrial Commission

This Commission requested the President to call a meeting of the Executive Committee in order that they might appear before it and discuss with it matters in regard to fees of physicians for services in compensation cases. The President called a meeting as requested. The members of the Industrial Commission discussed the matter in much detail, and stated many times that the law conferred upon them the authority and duty of fixing the doctors' fees in these cases, but they were extending the courtesy of consulting with the Executive Committee in regard to the matter and asked that a smaller committee be appointed, with power, to confer with them in greater detail. There was much discussion on the part of several members of the Executive Committee as to increase rather than decrease of fees.

The President appointed the committee as follows: Dr. John B. Wright, Raleigh, Chairman; Dr. L. A. Crowell, Lincolnton; Dr. J. K. Pepper, Winston-Salem; Dr. Hugh Thompson, Raleigh, and Dr. Addison G. Brenizer, Charlotte. You will note there is on this committee an orthopedic surgeon, two general surgeons, an eye, ear, nose, throat surgeon and an X-ray man, all of them doing work for the Industrial Commission. Besides it would appear that the personnel of this committee is high, in fact we doubt if a more competent, more conscientious, more honorable committee could have been selected from among the medical profession or any other group in this or any other state. However, they were only clothed with persuasive powers as the law provided that the Industrial Commission had all power in fixing fees. A copy of the resultant Fee Bill, which I am informed was not approved in some details by the committee, is appended hereto. Every Fellow of this Society had mailed to him, at last address given us, a copy of this Fee Bill. I have been informed by one or two physicians that they have found it useless to make out a bill, though in accordance with this Fee Bill, as the Commission seemed to pay no attention to it in authorizing payment, so that for some time they had simply been sending the items and leaving it to the Commission to pay whatever amount they cared to.

The Executive Committee

This Committee has rendered valuable and faithful services to this Society and the Fellows that compose it, and I do not see how this Society could function properly at this day and time without such a committee to advise and direct officers and direct the affairs of this Society.

You will find appended hereto a detailed statement of the financial transactions of this Society, with certificate from The Page Trust Company, Aberdeen, showing balance on hand, which you will note agrees with our records.

You will also find appended hereto minutes of the three meetings of the Executive Committee.

Respectfully submitted,

L. B. McBrayer,
Secretary-Treasurer.

FINANCIAL STATEMENT

April 18th, 1931-April 16th, 1932

RECEIPTS

Balance on checking account April 18th, 1931	$ 696.70	
Dues collected	7,305.00	
Transferred from certificates of deposit	3,500.00	
Interest on certificates of deposit	158.95	
Miscellaneous items sent A. M. A.	1.90	
Checks No.'s 197—351—447 never cashed	5.50	
Refund on pamphlet out of print	.25	
Reimbursement Fire Insurance letter	65.38	
Reimbursement Life Insurance letter	71.45	
Reimbursement Auto Insurance letter	62.38	
Total Receipts		$11,867.51

DISBURSEMENTS

Check No.		
705—Miss Mary Robinson, Reporting	$ 25.00	
706—Helen B. Eisenberger, Expenses registrar	13.64	
707—Central Carolina Tel. Co., Feb. & March tolls	4.10	
708—Dr. L. B. McBrayer, Postage, notice to delinquents	6.72	
709—Fayetteville Office Supply, payment on typewriter	50.00	
710—Washington-Duke Hotel, Expenses Miss Robinson	6.60	
711—Washington-Duke Hotel, Incidental meeting expenses	6.52	
712—Helen B. Eisenberger, April services	135.00	
713—Dr. L. B. McBrayer, honorarium, May, June, July, August	200.00	
714—Christian Printing Co., stationery Com. on Legisla	17.85	
715—Mildred Thomas, 4 das. services Transactions	12.00	
716—C. L. Hayes, ledger cash book	2.35	
717—Western Union, April messages	11.49	
718—Miss Mary Robinson, Reporting	17.45	
719—D. G. Stutz, express program envelopes	.84	
720—Mildred Thomas, services Transactions	18.00	
721—Mildred Thomas, services Transactions	18.00	
722—Mrs. J. H. Epperson, services registrar	5.00	
723—Dr. C. M. Van Poole, expenses obituary committee	5.00	
724—Mildred Thomas, services Transactions	18.00	
725—Mildred Thomas, services Transactions	6.00	
726—Miss Mary Robinson, Reporting	97.96	
727—Western Union, May messages	6.67	
728—Central Carolina Tel. Co., April & May tolls	3.85	
729—Master Reporting Co., Reporting	103.79	
730—Washington Duke Hotel, Ex. Com. meeting	11.50	
731—Dr. L. B. McBrayer, Postage	2.32	
732—Dr. M. L. Stevens, expenses Ex. Com. meeting	36.80	

Check No.		
733	Dr. C. W. Banner, expenses Ex. Com. meeting	$ 8.48
734	Dr. L. B. McBrayer, expenses Ex. Com. meeting	13.82
735	Dr. K. B. Pace, expenses Ex. Com. meeting	17.90
736	Dr. J. T. Hoggard, expenses Ex. Com. meeting	27.84
737	Dr. C. F. Strosnider, expenses Ex. Com. meeting	12.48
738	Dr. A. B. Holmes, expenses Ex. Com. meeting	22.40
739	Dr. Thos. C. Redfern, expenses Ex. Com. meeting	12.64
740	Dr. L. B. McBrayer, Postage	3.10
741	Seeman Printery, Inc., Stationery	81.68
742	Seeman Printery, Inc., Stationery	7.50
743	Helen B. Eisenberger, June services	135.00
744	D. G. Stutz, express, stationery	1.90
745	Western Union, June messages	3.78
746	American Medical Ass'n, Directory	12.00
747	Dr. L. B. McBrayer, Postage	6.66
748	Greensboro Daily News, 1,000 reprints	10.00
749	Central Carolina Tel. Co., June tolls	1.80
750	James C. Marriott, Reporting	27.06
751	King Cotton Hotel, lunches Ex. Com. meeting	28.00
752	Dr. L. B. McBrayer, postage insurance letter	32.00
753	Dr. M. L. Stevens, expenses Ex. Com. meeting	32.00
754	Dr. John B. Wright, expenses Ex. Com. meeting	13.12
755	Dr. W. W. Sawyer, expenses Ex. Com. meeting	41.28
756	Dr. L. B. McBrayer, expenses Ex. Com. meeting	14.44
757	Dr. K. B. Pace, expenses Ex. Com. meeting	26.72
758	Dr. J. T. Hoggard, expenses Ex. Com. meeting	34.88
759	Dr. C. F. Strosnider, expenses Ex. Com. meeting	21.60
760	Dr. A. B. Holmes, expenses Ex. Com. meeting	22.72
761	Dr. W. M. Coppridge, expenses Ex. Com. meeting	8.80
762	Dr. Addison G. Brenizer, expenses Ex. Com. meeting	15.52
763	Dr. Thos. C. Redfern, expenses Ex. Com. meeting	4.48
764	Dr. M. R. Adams, expenses Ex. Com. meeting	12.80
765	Dr. Joseph B. Greene, expenses Ex. Com. meeting	32.00
766	Helen B. Eisenberger, stenographic services	67.50
767	Western Union, July service tolls	2.68
768	Dr. L. B. McBrayer, honorarium Sept., Oct., Nov., Dec.	200.00
769	Ceneral Carolina Tel. Co., July tolls	3.40
770	Mrs. Eugene B. Squires, August services	10.00
771	W. Duncan Matthews, Attorney's services	10.00
772	Western Union, August messages	1.02
773	Central Carolina Tel. Co., August tolls	.40
774	James C. Marriott, Reporting	91.88
775	Dr. L. B. McBrayer, letter re Dist. meeting	1.42
776	Brown Morrison Co., part payment TRANSACTIONS	1,500.00
777	Dr. L. B. McBrayer, expenses Lexington	13.46
778	D. G. Stutz, freight TRANSACTIONS	2.74
779	Dr. L. B. McBrayer, postage transactions	2.99

Check No.		
780	Helen B. Eisenberger, October services	$ 135.00
781	Western Union Tel. Co., October messages	.60
782	Brown Morrison Co., final payment TRANSACTIONS	1,121.92
783	D. G. Stutz, express envelopes	1.27
784	Dr. L. B. McBrayer, postage	1.35
785	Dr. L. B. McBrayer, expenses November	12.40
786	Dr. L. B. McBrayer, report blanks	.83
787	Sandhill Citizen, membership cards	12.50
788	D. G. Stutz, freight reprints	1.32
789	Dr. L. B. McBrayer, honorarium Jan., Feb., Mar., April	200.00
790	Helen B. Eisenberger, December services	135.00
791	Dr. L. B. McBrayer, expenses December	77.30
792	Western Union, December messages	1.07
793	Central Carolina Tel. Co., December tolls	1.65
794	Seeman Printery—No. 10 envelopes	37.50
795	Dr. L. B. McBrayer, postage auto ins. letter	34.00
796	Dr. M. L. Stevens, expenses Ex. Com. meeting	32.00
797	Dr. John B. Wright, expenses Ex. Com. meeting	13.12
798	Dr. Benj. J. Lawrence, expenses Ex. Com. meeting	13.12
799	Dr. W. W. Sawyer, expenses Ex. Com. meeting	41.28
800	Dr. L. B. McBrayer, expenses Ex. Com. meeting	13.44
801	Dr. K. B. Pace, expenses Ex. Com. meeting	26.72
802	Dr. C. F. Strosnider, expenses Ex. Com. meeting	21.60
803	Dr. A. B. Holmes, expenses Ex. Com. meeting	22.72
804	Dr. Addison G. Brenizer, expenses Ex. Com. meeting	15.52
805	Thos. C. Redfern, expenses Ex. Com. meeting	4.48
806	Dr. M. R. Adams, expenses Ex. Com. meeting	12.80
807	Dr. C. B. Williams, expenses Ex. Com. meeting	41.28
808	King Cotton Hotel, lunch for Com. meeting	19.00
809	R. M. Parrott, Inc., mimeograph paper	17.50
810	L. B. McBrayer, Jr., services ins. letters	10.13
811	Mrs. Marion Adams, services ins. letters	6.00
812	Dr. L. B. McBrayer, postage life ins. letters	30.00
813	Fayetteville Office supply, bal. on typewriter	50.00
814	Mrs. Marion Adams, 2 days services	6.00
815	D. G. Stutz, Agt., express	1.35
816	L. B. McBrayer, Jr., services ins. letters	11.89
817	Dr. L. B. McBrayer, postage fire ins. letters	29.68
818	Mrs. Marion Adams, 1 day services	3.00
819	L. B. McBrayer, Jr., services ins. letters	9.50
820	Dr. L. B. McBrayer, expenses January	57.30
821	Sandhill Citizen, imprinting 1500 cards	1.50
822	Western Union, January messages	6.82
823	L. B. McBrayer, Jr., 5¾ hrs. services	2.89
824	L. B. McBrayer, Jr., services life ins. letter	4.00
825	Dr. L. B. McBrayer, postage membership cards	3.26
826	Sir Walter Hotel, lunch Vet. Hosp. Com.	3.90

Check No.			
827	Dr. M. R. Adams, expenses six yrs. councillor	$ 50.00	
828	Dr. L. B. McBrayer, postage ins. letter	32.38	
829	Mrs. Marion Adams, 2 days services, ins. letter	6.00	
830	L. B. McBrayer, Jr., services ins. letter	8.25	
831	L. B. McBrayer, Jr., services	3.50	
832	Hursey & Company, President's jewel	13.00	
833	Dr. L. B. McBrayer, travel expenses February	65.56	
834	Western Union, February messages	4.51	
835	Central Carolina Tel. Co., February tolls	.90	
836	Government Printing Office, Vet's Adm. pamphlet	.25	
837	Dr. L. B. McBrayer, postage membership cards	6.00	
838	D. G. Stutz, express envelopes	1.14	
839	Seeman Printery, Inc., 5000-6-3/4 envelopes	20.00	
840	Mrs. Marion Adams, typing Pres. addresses	4.50	
841	Helen B. Eisenberger, March services	135.00	
842	Helen B. Eisenberger, part April services	67.50	
843	Seeman Printery, Inc., letterheads Leg. Com.	7.75	
844	Brown Morrison Co., 2500 reprints	58.00	
845	Western Union, March messages	4.44	
846	Mrs. Marion Adams, 1½ days services	4.50	
847	Dr. L. B. McBrayer, postage, programs	25.50	
848	L. B. McBrayer, Jr., services enclosing programs	3.50	
849	News & Observer Pub. Co., mats for publicity	5.00	
850	Sir Walter Hotel, lunches Dr. Strosnider's Com.	8.00	
851	Voided		
852	No. State Engraving Co., mats publicity	12.66	
853	N. C. Tuberculosis Ass'n, postage	36.68	
854	N. C. Tuberculosis Ass'n, incidental office expense	111.13	
855	Dr. A. B. Holmes, expenses Vets. Hosp. Com.	18.08	
856	Dr. K. B. Pace, expenses Vets. Hosp. Com.	17.28	
857	Dr. J. T. Burrus, expenses Vets. Hosp. Com.	28.48	
858	Dr. C. W. Banner, expenses Dr. Strosnider's Com.	27.52	
859	Dr. Thos. C. Redfern, expenses Dr. Strosnider's Com.	36.80	
860	Dr. C. F. Strosnider, expenses Dr. Strosnider's Com.	16.00	
861	Dr. L. B. McBrayer, expenses Dr. Strosnider's Com.	12.00	
862	Dr. L. B. McBrayer, expenses March	14.56	
863	Certificate of deposit No. 1679, Page Trust Co.	2,500.00	
	Total Disbursements		$ 9,168.22
	Actual Cash Balance		$ 2,699.29

Checks outstanding:

No. 844	$58.00
No. 850	8.00
No. 852	12.66
No. 855	18.08
No. 856	17.28
No. 857	28.48
No. 858	27.52
No. 859	36.80
No. 860	16.00
No. 861	12.00
No. 862	14.56

Plus checks outstanding	$ 249.38
Page Trust Company Balance	$ 2,948.67

ANALYSIS OF EXPENDITURES

Certificate of Deposit	$2,500.00
Expenses Durham Meeting	25.16
Expenses Ex. Com. & Councillors	986.92
Freight & Express	8.66
Insurance letters	167.16
Office supplies	244.06
Postage	153.72
Preparing copy, printing and mailing transactions	2,696.91
Printing and Stationery	198.18
Reporting	369.74
Secretary's Honorarium	600.00
Stenographic and clerical help	830.00
Telephone & Telegraph	60.53
Travel expenses secretary	226.02
President's jewel	13.00
Total	$9,168.22

Balance on hand April 16th, 1932:

Actual checking account	$2,699.29
Certificates of Deposit	5,000.00
Total balance on hand	$ 7,699.29

Aberdeen, N. C., April 16, 1932.

Dr. L. B. McBrayer, Sec.-Treas.,
Medical Society of the State of N. C.,
Southern Pines, N. C.

Dear Dr. McBrayer:

We hereby certify that the balance on deposit with us to the credit of the Medical Society of the State of North Carolina at this date is $2,948.67 on the checking account and $5,000.00 at interest, the latter

deposit being represented by two Certificates of Deposit in the amount of $2,500.00 each.

Very truly yours,
D. I. McKeithen, *Sec.-Treas.*

MEDICAL AND HOSPITAL FEE SCHEDULE*

Additional Rules and Regulations In Connection With the Administration of the North Carolina Workmen's Compensation Act

Rule 28 (Amended) Effective September 1, 1931. The Commission has adopted the following in lieu of Rule 28, published in Vol. I, No. 3:

The provisions in the Workmen's Compensation Act relative to medical, surgical and hospital treatment are set out in the following sections:

EMPLOYER MUST FURNISH TREATMENT

Section 25. Medical, surgical, hospital, and other treatment, including medical and surgical supplies as may reasonably be required, for a period not exceeding ten weeks from date of injury to effect a cure or give relief and for such additional time as in the judgment of the Commission will tend to lessen the period of disability, and in addition thereto such original artificial members as may be reasonably necessary at the end of the healing period shall be provided by the employer. In case of a controversy arising between the employer and the employee relative to the continuance of medical, surgical, hospital, or other treatment, the Industrial Commission may order such further treatments as may in the discretion of the Commission be necessary.

The Commission may at any time upon request of an employee order a change of treatment and designate other treatment suggested by the injured employee subject to the approval of the Commission, and in such a case the expense thereof shall be borne by the employer upon the same terms and conditions as hereinbefore provided in this section for medical and surgical treatment and attendance.

The refusal of the employee to accept any medical, hospital, surgical, or other treatment when ordered by the Industrial Commission, shall bar said employee from further compensation until such refusal ceases, and no compensation shall at any time be paid for the period of suspension unless in the opinion of the Industrial Commission the circumstances justify the refusal, in which case, the Industrial Commission may order a change in the medical or hospital service.

If in an emergency on account of the employers' failure to provide the medical or other care as herein specified a physician other than provided by the employer is called to treat the injured employee, the reasonable cost of such service shall be paid by the employer if so ordered by the Industrial Commission.

MEASURE OF EMPLOYER'S LIABILITY FOR TREATMENT

Section 26. The pecuniary liability of the employer for medical, surgical, hospital service or other treatment required, when ordered by the Commission, shall be limited to such charges as prevail in the same community for similar treatment of injured persons of a like standard of living when such treatment is paid for by the injured person, and the employer shall not be liable in damages for malpractice

* Bulletin issued by the North Carolina Industrial Commission. Vol. I, No. 4, September, 1931.

by a physician or surgeon furnished by him pursuant to the provisions of this section, but the consequences of any such malpractice shall be deemed part of the injury resulting from the accident, and shall be compensated for as such.

SPECIAL EXAMINATIONS

SECTION 63. The Commission or any member thereof may, upon the application of either party, or upon its own motion, appoint a disinterested and duly qualified physician or surgeon to make any necessary medical examination of the employee, and to testify in respect thereto. Said physician or surgeon shall be allowed traveling expenses and a reasonable fee to be fixed by the Commission, not exceeding ten dollars for each examination and report, but the Commission may allow additional reasonable amounts in extraordinary cases.

The fees and expenses of such physician or surgeon shall be paid by the employer.

FEES TO BE APPROVED BY THE COMMISSION

SECTION 64. (a) Fees for attorneys and physicians and charges of hospitals for services under this act shall be subject to the approval of the Commission; but no physician shall be entitled to collect fees from an employer or insurance carrier until he has made the reports required by the Industrial Commission in connection with the case.

(b) Any person (1) who receives any fee, other consideration, or any gratuity on account of service so rendered, unless such consideration or gratuity is approved by the Commission or such court, or (2) who makes it a business to solicit employment for a lawyer or for himself in respect to any claim or award for compensation, shall be guilty of a misdemeanor, and upon conviction thereof shall, for each offense, be punished by a fine of not more than $500.00 or by imprisonment not to exceed one year, or by both such fine and imprisonment.

FEE SCHEDULE

The fees in the following schedule are for *guidance only,* and are the *maximum* which will ordinarily be approved by the Commission.

Charges in accordance with the schedules may be treated as approved where agreed upon between the physician or surgeon and the employer or insurance carrier.

In any case where the fee charged is not acceptable to the employer or insurance carrier, whether in accordance with the schedule or for a less amount, it must be submitted to the Commission for approval before payment.

All charges in excess of those indicated in the schedule must be submitted to the Commission for approval before payment.

When charges are submitted to the Commission for approval the liability of the employer or insurance carried will be determined by the injured person's standard of living with due regard to the severity of the injury, the nature of the treatment required, and the maximum fee set out in the schedule.

By the term "standard of living" the Commission means the aggregate of several factors, to-wit:

(a) Race.
(b) Occupation.
(c) Marital status.
(d) Number of dependents.
(e) Average weekly wage.

FLAT RATE

Fees indicated as flat rate, full treatment, in connection with amputations, fractures and dislocations, include the full treatment necessary, and the ordinary dressings for the proper treatment shall be supplied by the attending physician.

SCHEDULE

Amputations

FLAT RATE, INCLUDING AFTER CARE.

Thigh, at hip joint	$100.00
Thigh, between hip and knee	75.00
Leg, at knee joint	75.00
Leg, between ankle and knee	50.00
Foot, at ankle joint	50.00
Foot, between ankle joint and metatarsal joints	50.00
Foot, through metatarsal bones	50.00
Arm, at shoulder joint	75.00
Arm, at elbow joint	50.00
Arm, forearm or above elbow	50.00
Hand, at wrist	50.00
Hand, between wrist joint and carpo-metacarpal joints	50.00
Hand, through metacarpal bones	50.00
Finger or toe, at or proximal to distal phalangeal joint	25.00
Additional fingers or toes, at or proximal to the last phalangeal joints	5.00
Finger or toe, distal to the last phalangeal joint	15.00
Additional fingers or toes, distal to the last phalangeal joints	5.00

(All amputations are such as require suturing of the stump.)

Where more than one amputation (exclusive of fingers or toes), the major fee plus 50% of cost of the others as herein classified.

Fractures

FLAT RATE, INCLUDING REDUCTION AND AFTER CARE.

Humerus	$ 50.00
Forearm, one bone (shaft)	25.00
Forearm, both bones (shaft)	40.00
Forearm, Colles	25.00
Femur (shaft)	125.00
Femur (neck)	125.00
Lower leg, Fibula	25.00
Lower leg, Tibia	45.00
Lower leg, both bones or Potts	50.00
Jaw, lower (not requiring services of dental surgeon)	25.00
Jaw, upper (not requiring services of dental surgeon)	15.00
Ribs, one or more	10.00
Patella	25.00
Pelvis, any one bone	25.00
Pelvis, two or more bones	50.00
Carpals, one or more	20.00
Tarsals, one or more	30.00
Metatarsal	15.00

Metacarpal	$ 15.00
Metatarsal, two or more	25.00
Metacarpal, two or more	25.00
Finger	10.00
Each additional finger	5.00
Toe	10.00
Each additional toe	5.00
Coccyx	5.00
Sacrum	25.00
Sternum	15.00
Spine, process	15.00
Spine, body	100.00
Scapula	20.00
Clavicle	30.00
Nasal bones	25.00

Compound fracture 50% extra.

Open reduction 50% extra, including wiring, plating or bone grafting.

Where multiple fractures occur (exclusive of fingers or toes or nasal bones), the major fee plus 50% of the fee prescribed for each of the others herein classified.

Cost of cast materials not included in foregoing fees.

DISLOCATIONS—REDUCTION OF

FLAT RATE, FULL TREATMENT, INCLUDING AFTER CARE.

Shoulder	$ 25.00
Elbow	25.00
Wrist	15.00
Hip	50.00
Knee, to include semilunar cartilage	25.00
Patella	10.00
Angle	10.00
Clavicle	15.00
Finger	5.00
Each additional finger	5.00
Toe	5.00
Each additional toe	5.00
Jaw	5.00
Ribs, one or more	10.00
Coccyx	5.00
Metacarpal, one or more	10.00
Metatarsals	10.00
Carpal, one or more	15.00
Tarsal, one or more	20.00

In case of more than one dislocation (exclusive of metatarsals) the major fee plus 50% of the fee prescribed for each of the others herein classified.

No additional fee shall be allowed for the treatment of cuts, contusions, abrasions, etc., adjacent to the point of amputation or fracture.

SPECIAL OPERATIONS

Herniotomy (single), including after care	$ 75.00
Herniotomy (double), including after care	100.00

Injection Hydrophobia, full treatment (21 doses)	$ 42.00
Transfusion of blood when donor furnished by the patient	35.00
Repair of small wound (one or more) and dressing where no suturing required	3.00
Repair of large wound, same as above but not to exceed	25.00
Abscess incision, and dressing	5.00
Rupture of tendon, one or more, not to exceed	10.00 to 50.00

EXAMINATIONS

Complete physical examination and written report by *other than* the attending physician	$ 5,00
Examination, report and testimony before the Commission by *other than* the attending physician	10.00
Complete neurological examination and written report, when authorized by the Commission	20.00

X-RAY EXAMINATIONS AND FEES

By examination is meant making Roentgenograms and fluoroscopic studies when necessary for diagnosis. The fee for the examination shall include a written report which must be filed before any charge will be approved. The Industrial Commission reserves the right to have films referred to it for examination. Fees will be allowed for only such pictures as are readable.

Trunk or head, including films (two views)	$ 15.00
Thigh or knee, including films (two views)	10.00
Leg, arm, foot or hand, including films (two views)	10.00
Finger or toe, including film (single view)	2.50

An additional fee of 50% of those herein indicated will be allowed for subsequent X-ray examinations if such are shown to have been necessary.

It is expected that two views will be made in the original examination of a fracture of the skull, thigh, knee, leg, arm, foot or hand.

Fees will not be allowed for more than two examinations for "check-up" during restoration unless specially authorized by the Commission or carrier.

ORDINARY ITEMS

Anaesthetic, spinal or ether	$ 5.00
Anaesthetic, gas	7.50
Ordinary first aid, at office	3.00
Day visits, at office, each	2.00
Day visits, at home, each	3.00
Hospital visits, each	1.50
Night visits, allowed only when necessary, each	5.00

For calls outside the city limit, the regular visit fee, plus an allowance *not to exceed* 25 cents per mile for the entire distance traveled.

The fees include ordinary dressings for proper treatment to be supplied by the attending physician.

Fees on the basis of the number of visits will not be approved in cases involving amputations, fractures, dislocations or other conditions for which a flat rate for full treatment has been specified.

In cases where no flat rate for full treatment has been provided charges for daily dressings or visits will not be allowed unless the necessity for the same is clearly

shown. In such cases, and where reports show a high treatment frequency or protracted treatment, the Commission will reduce the per visit charge so as to bring the total cost within a reasonable flat rate for full treatment.

CASTS

Fees for full treatment include the *application* of all necessary casts, but for the physician, or hospital, furnishing the materials, allowance will be made as follows:

Whitman's Abduction Spica (fracture of neck of femur)	$15.00
Hip Spica—including foot (fracture of neck of femur)	10.00
Short Hip Spica—low back injuries and pelvic injuries	7.50
Shoulder Spica—fracture of upper humerus	10.00
Plaster Jacket—fracture of spine	7.50
Leg Cast—including foot—fracture of leg, etc.	5.00
Leg Cast, below knee	3.00
Arm Cast, forearm fracture	2.00

FEE SCHEDULE FOR PHYSICIANS SPECIALIZING IN DISEASES OF THE EYE

Ordinary removal of foreign body:	
(a) Attached to cornea or conjunctiva, but not embedded	$ 2.00
(b) Simple embedded	5.00
Localization of foreign body inside the eyeball, when necessary	25.00
Extraction of foreign body from inside the eyeball (anterior chamber), with or without magnet	50.00
Extraction of foreign body from inside the eyeball (posterior chamber), with or without magnet	75.00
Enucleation of eyeball, which must include implantation, including after care	75.00
Iridectomy, including after care	75.00
Complete Ophthalmological examination and report	10.00
Refraction, when authorized by the Commission	5.00
Office visits	2.00
Home visits	3.00
Hospital visits	3.00

FEE SCHEDULE FOR HOSPITALS

Hospitals shall be paid the fees *regularly charged* their *private patients* for *similar treatment,* but in *no case* to exceed the rates hereinafter set out, *which are maximum.*

Hospital rates include room and board, general nursing, ordinary dressings and medicines.

Ward bed, or bed in semi-private room, per day, *not to exceed* $4.00

Private room, per day, *not to exceed* 5.00

Charges for hospitalization *will not be approved* in the treatment of ambulatory cases, *nor in other cases where hospitalization is not necessary.*

In no case will the private room charge be approved unless and until it shall have been shown that private room treatment was necessary.

HOSPITAL EXTRAS

Operating room	$2.50 to $10.00
Board of special registered nurse, per meal	33⅓c

Charges for other service as, for instance, laboratory or X-ray work, must be approved by the Industrial Commission before payment.

SPECIAL NURSING

Charges for special nursing will be approved in those cases only where, and for such time as the patient's condition actually requires such attention. No such charge will be approved for the services of a student nurse.

DENTAL FEES

Extracting each tooth without anaesthetic	$ 1.00
Extracting tooth with anaesthetic	2.00
Extracting each tooth after first, same sitting	1.00
Extracting when chloroform or ether is demanded, in addition to physician's fee, one tooth to five	5.00
Each additional tooth to nineteenth teeth	1.00
Preparing mouth for denture	20.00
Bridge work, per tooth, abutments counting same as teeth, six anterior teeth	10.00
Bridge work, per tooth, bicuspids and molars	12.50
Inserting one tooth on rubber	10.00
Inserting each additional tooth to five teeth	1.00
X-rays, $2.00 first picture, full mouth	10.00
Inserting full upper or lower set in rubber	25.00
Replacing one tooth on gold or rubber	3.00
Replacing each additional tooth, same heat	1.00
Lingual bar plates bent clasps	40.00
Reduction of simple fracture of jaw, with splint application, flat rate for full treatment	75.00

RULES GOVERNING THE APPLICATION OF THE FEE SCHEDULE

(1) Reports as required by the Workmen's Compensation Act shall be made by the attending physician and/or hospital without extra charge.

(2) Original reports must show in detail the nature and extent of injury and contain a full description of the treatment.

(3) Final reports, on forms approved by the Commission, must contain a fully itemized statement of charges for treatment and describe the nature and extent of any permanent injury.

(4) Where the schedule allows a flat fee, it is not permissible to charge additional fees for visits, dressings, treatment, etc.

(5) Charges for X-ray, infra-red light, high frequency or other electrical treatment, or physiotherapy will not be approved unless previously authorized by the Commission.

(6) Fees will not be approved for the services of more than one attending surgeon over the same period of time, except by order of the insurance carrier, or Industrial Commission.

(7) In ambulatory cases where the surgeon is paid a fee which includes the cost of drugs and materials for dressings, and such drugs and dressings were

actually furnished by a hospital, the hospital will be required to look to the surgeon for payment.

(8) Charges for a major surgical operation and incidental care (including herniotomy) will not be approved unless the operation was first authorized by the Industrial Commission, insurance carrier, or self-insuring employer, except in cases of emergency.

LOSS OF VISION

The following table, according to the Snellen Notation, is the one used by the North Carolina Industrial Commission for determining the percentage of loss of vision. Of course, loss in muscle function may in conjunction with other factors indicate a greater percentage of loss of vision.

Snellen Notation for Distance	*Snellen Notation for Near*	*Percentage of Visual Efficiency*	*Percentage Loss of Vision*
20/20	14/14	100.0	0.0
20/25	14/17.5	95.7	4.3
20/30	14/21	91.5	8.5
20/35	14/24.5	87.5	12.5
20/40	14/28	83.6	16.4
20/45	14/31.5	80.0	20.0
20/50	14/35	76.5	23.5
20/60	14/42	69.9	30.1
20/70	14/49	64.0	36.0
20/80	14/56	58.5	41.5
20/90	14/63	53.4	46.6
20/100	14/70	48.9	51.1
20/120	14/84	40.9	59.1
20/140	14/98	34.2	65.8
20/160	14/112	28.6	71.4
20/180	14/126	23.9	76.1
20/200	14/140	20.0	80.0
20/220	14/154	16.7	83.3
20/240	14/168	14.0	86.0
20/260	14/182	11.7	88.3

Vision less than indicated above is deemed to be industrial blindness.

NOTE—Loss of vision must be based upon the reading *without* the use of a corrective lens.

MINUTES EXECUTIVE COMMITTEE MEETING

Meeting of the Executive Committee of the Medical Society of the State of North Carolina was called by the President, Dr. M. L. Stevens at the Washington Duke Hotel, Durham, Friday, June 12th, 1931, at 11 o'clock.

Dr. M. L. Stevens, President presided and those present were:

Dr. M. L. Stevens, President
Dr. L. B. McBrayer, Secretary
Dr. C. W. Banner, Vice-President
Dr. K. B. Pace, Councillor
Dr. J. T. Hoggard, Councillor

Dr. C. F. Strosnider, Councillor
Dr. A. B. Holmes, Councillor
Dr. Thos. C. Redfern, Councillor
Dr. W. M. Coppridge, Councillor.

The matter of liability insurance was reported on by Dr. L. B. McBrayer after which Mr. Uhler of the United States Fidelity & Guarantee Company presented the proposed rates of this Company which show a material reduction over premiums we are now paying Aetna, as follows:

First Limit	*Second Limit*	*Addl. % to $18.00*	*Total Prem. Proposed New Group Policy*	*Total Prem. Present Policy*	*Net Difference*
$ 5,000	$15,000	0	$18.00	$18.00	..
10,000	30,000	25	22.50	24.00	$1.50
15,000	30,000	30	23.40	26.65	3.24
15,000	35,000	31	23.58	26.82	3.24
15,000	40,000	32	23.76	26.91	3.15
*15,000	45,000	33⅓	24.00	27.00	3.00
20,000	30,000	40	25.20	28.26	3.06
20,000	35,000	42	25.56	28.44	2.88
20,000	40,000	44	25.92	28.62	2.70
20,000	45,000	46	26.28	28.80	2.52
20,000	50,000	48	26.64	28.98	2.34
20,000	55,000	49	26.82	29.16	2.34
*20,000	60,000	50	27.00	29.34	2.34
25,000	30,000	55	27.90	29.79	1.89
25,000	35,000	56	28.08	29.88	1.80
25,000	40,000	57	28.26	29.97	1.71
25,000	45,000	58	28.44	30.06	1.62
25,000	50,000	60	28.80	30.15	1.35

In addition to above savings an additional offer was made to pay the society 5% on premiums received, that being a matter between the State Agent and the Society. This was estimated at about $1500 annually saving to the Doctors and cash paid the Society of $1,012.50, total $2,512.50. This Company now carries policies for about 200 Fellows of the Medical Society.

The Aetna Insurance Company was represented by Mr. Merrimon and Mr. Riddick. This Company covers between 600 and 700 Fellows of the Medical Society. Mr. Riddick made the proposition that if policies could be written for 1,000 Fellows they would lower the rates now in force.

Before the close of the session the Secretary reported that he had conferred as per request with Mr. Merrimon and he had agreed to get the information we desired, particularly on X-ray but the Secretary advised the Executive Committee that Mr. Merrimon had failed to do so. On motion of Dr. Banner the further consideration of placing liability insurance contract was postponed until next meeting of the Executive

Committee and the Secretary was instructed to obtain all necessary information in regard to premiums charged including X-ray and also the methods of handling suits.

The report of Dr. Wm. H. Smith, Chairman, Committee on Program appointed at the last meeting of the Executive Committee was presented by the Secretary. Dr. Smith reported a letter sent to the secretary of every County Society asking that the matter of program of the State Society meeting be brought up at the regular meeting and discussed. He had only heard from 12 secretaries, as follows:

Dr. Smith's Report:

The committee of which I am Chairman begs to make the following report on the letter sent to the County Medical Societies last year in regard to the State Meeting program.

As you know, there were two suggestions in the letter and other suggestions were asked. As the replies were chiefly in the form of answers of these two suggestions I am summarizing the replies.

1. Limiting the number of sections, probably to three, one on Surgery, one on Medicine and one on Eye, Ear, Nose and Throat. All papers to be put in one of these sections.

Answers: In favor 9—Against 3.

2. Whether to have scientific papers at the general sessions.

Answers: In favor 5—Against 3—Not answered 2.

As my term of office as Councillor expires at the Durham Meeting and pari passu my membership on the Committee, I think it best for you to have these answers and accordingly I am mailing them to you under separate cover.

With best wishes I am, as you know,

Your friend,

(Signed) Wm. H. Smith.

On motion of Dr. Strosnider, the set-up of the program for 1932 meeting at Winston-Salem shall be on the same general plan as 1931 meeting.

Certain matters of the Secretary's annual report to the House of Delegates which were referred to the Executive Committee for action were taken up item by item. On motion of Dr. Holmes seconded by Dr. Hoggard and unanimously adopted, the Executive Committee decided to appoint a Liaison Committee, the following to constitute that Committee: President, President-elect, Vice-Presidents and Secretary. The Secretary was also instructed to notify the County Societies of this action with the request that each County Society appoint a similar Liaison Committee. The understanding being that this Liaison Committee should have authority to confer with and act for the Medical Society with all organizations, both official and non-official, functioning in the State, in regard to matters in which the medical profession would be interested or helpful.

A discussion of ways and means carrying into effect recommendation of Secretary, fourth paragraph from the close, in regard to the medical profession distributing to all the people all the scientific knowledge extant at the current time. Several examples were given by the Sec-

retary among others the re-action of a lay-woman in one county to the County Medical Society in regard to having some school children treated by a chiropractor, in which she asked very pointedly, "What has the County Medical Society done?"

The matter in regard to the removal of tonsils in one county where perhaps 250 tonsils had been removed at a clinic by a former resident of North Carolina now living in another state who has his license in this state. At the estimate of one of the members of the County Medical Society there were 2500 who are needing an operation.

Another example was the repeaters in our public school, percentage given by last biennial report by A. T. Allen, State Superintendent of Public Instruction being 37.6% costing a total of $14,700,000 to teach; the particular point of interest for the medical profession being, the repeaters due wholly or in part to defects or diseases that could be easily cured and some of them more easily prevented, exact percentage unknown.

On motion which was unanimously carried, the Executive Committee of the Medical Society of the State of North Carolina assumed for the medical profession of the State of North Carolina the obligation of taking care of the medical work incident to a study and solution of this problem of repeaters in our schools so far as medicine is concerned and pledged its coöperation to the State Board of Health, State Department of Education, State Welfare Department and other interested organizations in the study and solution of this problem. On motion this matter was referred to the Liaison Committee for action with the request that they ask the County Medical Societies through their Liaison Committee to join in the study and solution of this problem. Each member of the Executive Committee was requested to study this problem, so that the matter could be gone into fully at the next meeting.

The resignation of Dr. J. M. Parrott as a member of the State Board of Health was read by the Secretary-Treasurer, Dr. Parrott having been elected and the day before accepted the office of Secretary of the State Board of Health and State Health Officer. On motion the resignation of Dr. Parrott was accepted.

Nominations to fill the vacancy caused by the resignation of Dr. Parrott were declared to be in order. Dr. McBrayer read a list of the names he had heard suggested to fill the vacancy as follows:

Dr. T. W. M. Long, Roanoke Rapids
Dr. Grady G. Dixon, Ayden
Dr. John C. Wessell, Wilmington
Dr. V. M. Hicks, Raleigh
Dr. W. H. Smith, Goldsboro
Dr. S. D. McPherson, Durham

and Dr. L. E. Farthing, Wilmington, who was runner-up at the election of members of the State Board of Health at the annual meeting of the Medical Society of the State of North Carolina last April.

Dr. Hoggard of Wilmington nominated Dr. L. E. Farthing of Wilmington and this nomination was seconded by Dr. C. W. Banner of Greensboro. Dr. K. B. Pace of Greenville nominated Dr. Grady G. Dixon of Ayden which nomination was seconded by Dr. C. F. Strosnider

of Goldsboro. There being no other nominations the ballot was taken which resulted in the election of Dr. Grady G. Dixon to fill the vacancy on the State Board of Health caused by the resignation of Dr. J. M. Parrott, the term of office being until the next annual meeting of the Medical Society of the State of North Carolina at Winston-Salem.

On motion it was ordered that the Secretary be reimbursed for travel expenses in traveling in the interest of the Medical Society of the State of North Carolina. It was agreed that the Secretary would send to the members of the Executive Committee in attendance, checks for their expenses in accordance with previous action of the Executive Committee.

The matter of charity work done by physicians and the amount of it was discussed and it was agreed that the Secretary should write each County Medical Society requesting that each member of the Society should present an estimate of the amount of charity work done during the previous year. If necessary it was thought that each Doctor might keep an account of the amount of charity work done for one month charging the regular fees that he charges patients in moderate circumstances and make an estimate of the year's work from this, unless it was possible to give an estimate without this trouble.

Dr. K. B. Pace of Greenville brought to the attention of the Executive Committee the fact that in this drive for economy, City and County Health Departments were likely to suffer severely in the decrease of their budget and it was agreed that each County Medical Society be requested to look into these matters and prevent a crippling and sometimes mayhap destruction of the health work in the County in the way above mentioned. It was the feeling that in times of stress and strain, particularly financial stress, that the continuation of the health work and the increasing of the health work was one of the most important things facing the state, city and county administrations in North Carolina.

No other business appearing, on motion adjourned.

L. B. McBrayer,
Secretary-Treasurer.

Approved:
M. L. Stevens,
President.

Wednesday, July 22—11 O'Clock

Meeting of the Executive Committee of the Medical Society of the State of North Carolina was called by the President, Dr. M. L. Stevens, King Cotton Hotel, Greensboro, Wednesday, July 22nd at 11 o'clock. This meeting was held at the request of the Industrial Commission.

Dr. M. L. Stevens, President, presided and those present were:

Dr. M. L. Stevens, President
Dr. John B. Wright, President-elect
Dr. C. W. Banner, First Vice-President
Dr. W. W. Sawyer, Second Vice-President
Dr. L. B. McBrayer, Secretary-Treasurer
Dr. K. B. Pace, Councillor
Dr. J. T. Hoggard, Councillor
Dr. C. F. Strosnider, Councillor

Dr. A. B. Holmes, Councillor
Dr. W. M. Coppridge, Councillor
Dr. Addison G. Brenizer, Councillor
Dr. Thos. C. Redfern, Councillor
Dr. M. R. Adams, Councillor
Dr. Joseph B. Greene, Councillor.

Also Dr. L. A. Crowell and Dr. J. B. Cranmer members of the Committee from the Medical Society to confer with the Industrial Commission when the present Fee Bill was drafted. Dr. J. K. Pepper, member of the Board of Medical Examiners. Dr. J. T. Burrus and Dr. J. M. Parrott of the State Board of Health and the following members of the Industrial Commission: Mr. J. Dewey Dorsett, Mr. T. A. Wilson and Mr. J. C. Root, of the Claim Department.

Mr. J. Dewey Dorsett of the Industrial Commission presented some of the difficulties experienced under the Compensation Law. Mr. J. C. Root of the Claim Department presented some of the troubles in that Department. Mr. T. A. Wilson reviewed a little history since the law had been enacted.

Dr. L. B. McBrayer asked several questions which he thought ought to be taken into consideration, followed by discussions by Dr. Addison G. Brenizer; Dr. L. A. Crowell; Dr. J. B. Cranmer; Dr. K. B. Pace and Dr. J. T. Hoggard.

Dr. Strosnider made a motion that a Committee of three be appointed with power to act for the Society, to confer with the Industrial Commission at Raleigh, Thursday or Friday of the following week. Motion seconded by Dr. A. B. Holmes and was carried. Dr. Holmes later made a motion that the Committee consist of five members instead of three which was seconded by Dr. Greene and Dr. Adams. Motion was carried.

Adjourned for lunch.

Dr. Burrus was called upon to say a few words as President of the State Board of Health. He stated in part, that the State Board of Health wished to be an organization "by the medical profession, for the medical profession and the people of the State of North Carolina. We want to do what the medical profession wants done. We want to live as close to the medical profession as is possible. We want the medical profession to open their mouths and let us know what they want, what they believe is the right thing, and if they will do it, it will make glad the heart of every member on the Board. We are your agents and we want to be directed by you, believing that when directed by all the medical society we will not make mistakes."

Dr. Parrott, State Health Officer, stated in a general way the policy of the present Board.

Dr. Stevens appointed the following to serve on the Committee to confer with the Industrial Commission:

Dr. John B. Wright, Raleigh, *Chairman*
Dr. L. A. Crowell, Lincolnton
Dr. J. K. Pepper, Winston-Salem
Dr. Hugh Thompson, Raleigh
Dr. Addison G. Brenizer, Charlotte.

Dr. Strosnider made a motion that the reading of the minutes of the last meeting be dispensed with.

Dr. L. B. McBrayer presented information in regard to liability insurance.

Motion made by Dr. Coppridge that the Society recommend to its members on the basis of 6% lower premiums and the fact that the Medical Society receives an additional 5% totalling 11% per year, the contract presented by the United States Fidelity & Guarantee Company for liability insurance. Motion seconded by Dr. Holmes and carried.

The Secretary presented suggestion for program for the Wednesday session of the Annual Meeting at Winston-Salem next April. Motion made by Dr. Hoggard seconded by Dr. Wright, that the President and Secretary work out the Wednesday program and motion was carried.

Dr. Coppridge brought to the attention of those present the fact that Dr. Funk of the Jefferson Medical College would be present for the Jefferson Alumni meeting and asked the feasibility of having him speak to the members of the Society. Motion made and carried that the President and Secretary work out the matter of inviting Dr. Funk to address the Society.

The Secretary presented the resolution in regard to doctors serving 200 hours each year in order to be recommissioned in the army. Dr. Strosnider made a motion seconded by Dr. Hoggard that we adopt this resolution. Motion carried.

The Secretary presented the matter in regard to injured persons paying highway accident bills.

The Secretary presented the matter in regard to Costs of Medical Care, and the securing of pay for medical services by those of limited means, and referred to article in Greensboro *News* previously sent to each member. This matter was discussed by Dr. Wright, Dr. Brenizer and Dr. McBrayer. Dr. McBrayer made a motion that a Committee be appointed from the Councillors with Dr. Brenizer, Chairman, to study this question. Motion carried. Dr. Stevens appointed Dr. Strosnider and Dr. Holmes to serve with Dr. Brenizer on this Committee.

Dr. McBrayer made a motion that we approve the George Washington Bicentennial Movement. Motion carried.

Dr. Parrott, Secretary of the State Board of Health, speaking for the State Board of Health, stated that they appreciated being invited to sit in at the Executive Committee meetings and suggested that he be invited through the Councillors to appear on the various District Medical Society programs.

No further business appearing on motion adjourned.

Approved:

M. L. Stevens,
President.

L. B. McBrayer,
Secretary-Treasurer.

Saturday, January 9—10:30 A.M.

Meeting of the Executive Committee of the Medical Society of the State of North Carolina was called to order by the President, Dr. M. L.

Stevens, at the King Cotton Hotel, Greensboro, Saturday, January 9th, 1932 at 10:30 A.M.

Dr. M. L. Stevens, President, presided and those present were:

Dr. M. L. Stevens, President
Dr. John B. Wright, President-elect
Dr. C. W. Banner, First Vice-President
Dr. W. W. Sawyer, Second Vice-President
Dr. L. B. McBrayer, Secretary-Treasurer.

Councillors:

Dr. C. B. Williams, First District
Dr. K. B. Pace, Second District
Dr. C. F. Strosnider, Fourth District
Dr. A. B. Holmes, Fifth District
Dr. Addison G. Brenizer, Seventh District
Dr. Thos. C. Redfern, Eighth District
Dr. M. R. Adams, Ninth District.

Also Dr. Benj. J. Lawrence, Chairman, Committee on Legislation; Dr. R. L. Carlton, Chairman, Committee on Arrangements; Dr. J. M. Parrott, Secretary, State Board of Health; Dr. J. T. Burrus, President, State Board of Health.

The minutes of the last meeting were read by the Secretary-Treasurer and unanimously approved.

The Committee appointed at the last meeting to confer with the Industrial Commission was asked to report. Dr. John B. Wright stated that the Committee met in full and all suggested fees were approved down to X-ray, which have never been approved by the Committee. Dr. Adams moved that the report be received which was seconded by Dr. Strosnider. Motion carried.

Dr. Brenizer reported for the Committee on the High Costs of Medical Care. Dr. Williams made a motion that the report be accepted and furnished the press of the state as coming from the Executive Committee with its approval, and that the Committee be continued with instructions to follow the matter through and if considered necessary to answer any criticism to the article that might appear in the press, which was seconded by Dr. Pace and unanimously carried.

Dr. F. R. Taylor of High Point reported on his attendance to the Virginia State Medical Society as a delegate from this Society.

Dr. Lawrence, Chairman, Committee on Legislation, presented the matter of a Bill in Congress to increase the number of beds in Veterans' Bureau hospitals by 120,000. He also stated that there were more than that many empty beds at this time in the various hospitals in the United States and that the veterans could be given better attention in the hospitals near them and that these hospitals would be made available immediately rather than wait several years to finish the building program and all the money used in the erection of same would be saved and the community and other hospitals now existent would be helped by the Veterans' Bureau using them while they would be greatly injured by building the hospitals mentioned. He also stated that it was wrong in principle and was the most vicious kind of state medicine, that if these

hospitals were built it would only be a matter of time until all government employees and the families and kin people of all veterans would be treated therein.

On motion of Dr. Holmes the Executive Committee went on record as disapproving in toto of any appropriations for such building program. Motion was carried. Dr. Holmes also states that Mr. Stevens, Commander of the American Legion agreed with us that there were sufficient beds at this time to take care of the veterans. On motion of Dr. Holmes a Committee was appointed to confer with Mr. Stevens in regard to this matter and follow through on any plan that might seem desirable. They were also authorized to represent the Medical Society of the State of North Carolina as a Committee on Public Relations to confer with the State Officers of the Parent Teachers Association, State Federation of Womens Clubs and any other organizations or individuals that it might be thought wise in this state. It was also requested that every councillor confer with his member of Congress and United States Senator and secure their opposition to this measure. Motion carried. Committee: Dr. A. B. Holmes, Dr. J. T. Burrus, Dr. K. B. Pace, Dr. L. B. McBrayer, Dr. Benj. J. Lawrence.

Dr. Lawrence, Chairman, Committee on Legislation also brought up the matter of the so-called Maternity and Infancy Bill and asked Dr. Parrott to speak for him. After considerable discussion, all in opposition to the present arrangement, the Society went on record as favoring appropriations mentioned in House Bill No. 4739 by Mr. Bankhead provided that Section 3B be administered wholly by the U. S. Public Health Service. They heartily endorsed Section 3A for certain appropriations to be administered by the Public Health Service. Each member of the Executive Committee was requested to write his congressman and the United States Senators in accordance with above resolution. The Chairman of the Committee on Legislation was also requested to take the matter up with our congressmen in Washington. The Executive Committee very definitely and heartily approved Senate Bill No. 1234 generally known as the Drought Relief Bill.

State Clinics

Dr. Parrott was asked also to speak on the attitude of the State Board of Health in regard to clinics, in reply to which Dr. Parrott stated that it was the policy of the State Board of Health not to hold any clinics for diagnosis or treatment unless they were necessary from an educational standpoint. That he felt it was the duty of the local physicians in every county in the state to assume this responsibility and the State Board of Health was ready to coöperate with the State and local Societies in any way that might be possible toward the carrying out of that idea. Dr. Strosnider moved that a Committee be appointed to study and formulate plans for the diagnosis and treatment of all diseases and defects by the local profession in each county. The motion was carried and in discussion of the motion it was stated and apparently all present concurring that the state had assumed the education of all the children of the state; that 37.6% of all the children in all the schools in North Carolina repeated their grades one or more times and that from the

meagre studies made on this particular subject it was thought that more than 50% of these repeaters were due to illness and further that if the medical profession didn't assume this responsibility and if the State Board of Health stood from under, the state through its State Department of Education or otherwise would be compelled on account of the economics of the situation to employ physicians and have this work done. A committee was appointed to handle this matter, Dr. Strosnider, Chairman; Dr. Redfern, Dr. Banner, Dr. Brenizer, Dr. McBrayer and Dr. Lawrence.

The Secretary brought up the matter of Life Insurance, Automobile Insurance and Fire Insurance that had been arranged. Mr. M. M. Stewart, Special Agent for the State Farm Mutual Automobile Insurance Company being present and speaking, these agreements showing a saving of from 30% to 50% in premiums to the members of our Society, the companies having been investigated and considered reliable. On motion the three companies: State Farm Mutual Automobile Insurance; Union Coöperative Insurance Association and United Mutual Fire Insurance were approved. The secretary was instructed to advise the membership in regard thereto and to visit the District Meetings and present these matters to those members of the profession attending. Motion carried.

A program in outline for the next meeting of the State Medical Society was presented by the Secretary during the lunch hour which had the approval of the President, same was approved. The outline referred to follows:

House of Delegates, Monday night.
First General Session, Tuesday morning.
Section meetings, Tuesday afternoon.
Second General Session, Tuesday evening.
Wednesday:

8:30 a.m.—Section meetings.
11:45 a.m.—Third General Session.
(a) Nomination one member State Board of Health 3 years to fill vacancy caused by resignation Dr. J. M. Parrott.
(b) Nomination seven members Board Medical Examiners.
12:00 M.—Conjoint session Medical Society of the State of North Carolina and State Board of Health.
2:00 p.m.—Fourth General Session.
(a) Ballotting for one member State Board of Health 3 years.
(b) Ballotting for 7 members State Board of Medical Examiners, six years.
(c) Scientific program continues.
8:00 p.m.—Final meeting House of Delegates.
8:30 p.m.—Fifth General Session.

Dr. Holmes suggested that the words "Public Relations" committee be used instead of "Liaison" committee. Agreed to.

Dr. Carlton reported as Chairman of the Committee on Arrangements.

Dr. Hudson, Chairman, Section on Public Health and Education who was present by invitation reported that the program for his section was in process.

Dr. J. T. Burrus, President, State Board of Health was present and made very interesting and helpful remarks.

No further business appearing on motion adjourned.

Respectfully submitted,

L. B. McBrayer,
Secretary.

Approved:
M. L. Stevens,
President.

EXECUTIVE COMMITTEE MEETING

April 18, 1932

A meeting of the Executive Committee of the Medical Society of the State of North Carolina was held in Lecture Room "C" of the Robert E. Lee Hotel, Winston-Salem, N. C., at 4 p. m., Dr. M. L. Stevens, President of the Society, presiding.

The following were present: President Stevens, President-Elect Wright, First Vice-President Banner, Second Vice-President Sawyer, Secretary-Treasurer McBrayer.

Councillors: First District, Dr. Williams; Second District, Dr. Pace; Third District, Dr. Hoggard; Fourth District, Dr. Strosnider; Fifth District, Dr. Holmes; Eighth District, Dr. Redfern; Ninth District, Dr. Adams; Tenth District, Dr. Greene.

Upon motion made by Dr. Greene, duly seconded, it was voted to dispense with the reading of the minutes, inasmuch as they had already been distributed to the members of the Committee.

President Stevens then asked Dr. McBrayer to present the special matter for consideration at the meeting, the work of Dr. Strosnider's committee.

Dr. McBrayer stated that the Committee had made considerable progress in working out a plan by which the local county medical society in each county should do the charity work of the county and the diagnosis and treatment of retarded and indigent school children, for which they were to be paid at least in part.

Dr. McBrayer said that Dr. Strosnider had worked out quite a detailed plan, up to a certain point; that he himself had written up that part of the plan that had been agreed on, and that Dr. Strosnider was to write the remainder of the report. Dr. McBrayer then presented the part that he had written (Dr. Strosnider had not yet arrived at the meeting) which is as follows:

A plan to provide adequate care for indigent and retarded school children in need of medical attention.

PROBLEM

(a) To determine the retarded school children.
(b) To segregate the indigent.
(c) To administer necessary medical attention to the indigent.

AGENCIES

(1) Teachers and other school officials.
(2) County Welfare Department.
(3) County Health Department.
(4) County Medical Society.
(5) County and adjacent hospital.

Section 1. The fact of retardedness shall be determined by the teacher or teachers in charge of the grade to which the child is assigned.

Sec. 2. The fact of indigency shall be determined by the County Welfare Officer.

Sec. 3. The fact of existing necessity for medical attention to a retarded school child shall be determined by a committee from the County Medical and Dental Society or the County Health Officer.

Sec. 4. In the case of the retarded school child found to be in need of medical attention it shall be the duty of an agency selected by the local Medical Society to so advise the parent or guardian of such child.

Sec. 5. In the case of the indigent, retarded school child found to be in need of medical attention, the agency selected by Section No. 4 shall obtain the necessary written permission from the parent or guardian of such child to have necessary medical attention rendered.

Sec. 6. After Committee in Section No. 4 has obtained necessary permission for work to be done, it shall be duty of said Committee to refer this child for treatment to family and personal physician or to such person as shall be designated by said local County Medical Society, or Committee therefrom.

Sec. 7. The agency designated to correct physical defects and diseases shall report the results to the County Health Officer or such agency as the County Medical Society shall designate.

Sec. 8. The County Medical Society or the Committee appointed by it may in its discretion request aid in organization and concrete application of the foregoing, from the State Departments of Education, Welfare or Health, where there is no adequate whole time health service.

Sec. 9. We recommend that some plan be worked out by which the community through its governing body pay to the physicians or medical organization rendering this service, at least a small if not a reasonable part of the expense incident thereto, and we beg to submit the following plan:

The plan as submitted by Dr. Strosnider is as follows:

That the County Medical Society appoint a coördinating committee consisting of from three to five members of the medical and other societies interested (annually) to formulate plans relative to remedying the physical defects and diseases of the indigent grade repeating school children. That said committee secure the necessary appropriations from the state, county or city governing bodies to defray the expenses in connection therewith.

That all drugs, serums, vaccines, antitoxins, materials and appliances furnished be at cost price plus ten per cent.

That the hospitals make a flat twenty-four hour rate for the tonsil and adenoid work, or that a more economical arrangement be made in connection with such tonsil and adenoid work when practicable.

That all professional work, medical and dental, be valued at twenty-five per cent of the average prevailing fee bill.

Dr. McBrayer stated that the Committee felt that an epitome of this report should be presented to the House of Delegates, if approved by the Executive Committee, and that permission be sought to proceed further with these studies and to make application, if it be possible, of final plans.

It was also stated by Dr. McBrayer that, "It is thought by parties who are in the 'know' that there would probably be $100,000 or in the neighborhood of that amount available beginning July first for this purpose from sources other than the county." Dr. McBrayer further stated that it would be advisable not to mention this possibility of $100,000 being available even to members of the Society. The availability of this money, he said, depended on whether or not the State happened to have that much money after the first of July, "about which there is some doubt."

Dr. McBrayer brought out that Dr. Strosnider had worked very diligently on this, had studied everything that had been done in the United States along this line; also that before it was through it would probably include the indigent adults as well as the children, for which the county would be expected to pay somewhat after the Iowa Plan. There they take a County Medical Society and get all those who care to to agree to do this work. Then they get the County Commissioners to pay them so much for the work. All of this is now done as charity except what the County Physician does.

In response to a question as to what would be done in counties where there were no medical societies, Dr. McBrayer stated that this would be a strong incentive to organize medical societies in such counties.

In answer to another question about counties where there were only two or three physicians, Dr. McBrayer stated that in such counties those two or three physicians might be constituted as representing the medical profession in that county. Dr. Hoggard made the point that they could combine with some county adjoining.

Dr. Williams made the point that it would pauperize a lot of people, in his judgment, and that it might turn out to be a rather dangerous proposition. He said it was a knotty problem as to who was charity; that every physician had that to determine. Dr. Williams said that if it were left to the welfare officer as to who should be charity, that they would all be charity.

Dr. Pace stated that no one knew the financial and other condition of people like the family doctor did. He said that the family doctor knew more about the ability of people to pay than either the health officer or the welfare officer.

Dr. Wright stated that now in Raleigh every one was investigated by the welfare officer as to how many in the family were at work, the salaries they were getting, etc. He stated that this plan was working the best of any so far.

Dr. McBrayer stated that there were two important principles here—one that the doctor should do all this work, and secondly that they get paid for it.

A motion was then made by Dr. Holmes, seconded by Dr. Hoggard, that the report of Dr. Strosnider's Committee be approved, with the recommendation that it be presented to the House of Delegates for its consideration. The motion was put to a vote and was carried.

Dr. Williams asked if that meant that the Executive Committee recommended this to the House of Delegates. To which President Stevens replied, "We recommend it to the House of Delegates for their favorable consideration." Dr. Williams then stated that he was opposed to that and would vote "no" on it.

The President then called upon Dr. Holmes to present his report on the Treatment of Veterans. Dr. Holmes presented his report on this work as follows:

Dr. Holmes: Mr. President, this Committee has been quite active. We have had a meeting and we have contacted a majority of the District Commanders of the American Legion as to our plan for having every disabled, injured or sick veteran treated in his own home or home hospital by a doctor of his own choosing. It seems to have met with almost unanimous support on the part of the American Legion in North Carolina.

As Dr. McBrayer knows, a resolution embodying the principles of this plan was presented to the Executive Committee of the North Carolina Department of the American Legion. It looked like it was going to be unanimously adopted, but one or two men said they had not heard of it before, and it was referred to a Committee for further study and to report at the state meeting in Asheville in July.

I am indeed glad to be able to report that it looks like the Committee is meeting with success. It is only a question, in my opinion, of showing to the American Legion what we are trying to do. Every active member of the American Legion I have seen is in favor of this plan, heartily in favor of it.

I would like to ask that the Committee be continued, so that it may have a chance to work this proposition out.

Dr. Hoggard: I move that the request be granted.

The motion was seconded by Dr. Strosnider and was carried.

Dr. McBrayer: They (referring to the committees headed by Drs. Holmes and Strosnider) are about two of the best working committees that I have ever been on or with. They have done wonderful work.

I also want to say that General Hines is in favor of that—General Hines Director of the Veterans Bureau. It is just a little bit different from the A. M. A. proposition. I feel pretty sure that the A. M. A. is going to modify theirs or authorize their Council or the Trustees or the executives of the Association to do so.

President Stevens: Is there any further business to come before the meeting of the Executive Committee?

Dr. McBrayer: None that I know of. Maybe some of the members have matters to bring up.

President Stevens: Has any member of the Committee any matter to bring up for consideration?

. . . There was no response . . .

PRESIDENT STEVENS: If not, I suppose we are ready to adjourn.

. . . The meeting then adjourned at four thirty-five o'clock. . . .

L. B. MCBRAYER,
Secretary-Treasurer.

Approved:
M. L. STEVENS,
President.

DR. MCBRAYER: All of Dr. Strosnider's report was approved by the Executive Committee and presented to the House of Delegates with the request that they approve it and authorize a continued study by the Executive Committee of these problems.

. . . Dr. McBrayer then concluded his report by reading a résumé of the financial statement. . . . (Applause)

PRESIDENT STEVENS: You have heard the report of the Secretary-Treasurer. It has been customary to refer this report to a special committee to consider the matters presented therein and report to the next meeting of the House of Delegates Wednesday evening. I appoint on this Committee Dr. Carl V. Reynolds of Asheville, Dr. H. B. Ivey of Goldsboro, and Dr. W. P. Holt of Erwin.

We are privileged to have with us this evening Dr. E. Starr Judd, President of the American Medical Association. Dr. Judd needs no introduction to any body of medical men anywhere in the world. Dr. Judd!

. . . The members arose and applauded . . .

DR. E. STARR JUDD: Mr. President, Members of the House of Delegates of the North Carolina State Society: It is a very great honor for me to be invited as one of the guests to this meeting of the North Carolina State Society. Your Secretary wrote me a few days ago and asked me if I would not speak to the House of Delegates tonight. He told me what he would like to have me speak about. One subject was legislative matters, and the other subject he assigned to me was some of the business principles of the practice of medicine. In order that I may stick to my subject and get through as quickly as possible I have set down a few things that I would like to set before you.

LEGISLATIVE COMMITTEES OF STATE SOCIETIES: THE BUSINESS OF THE PRACTICE OF MEDICINE.

E. STARR JUDD, M.D., President American Medical Association,
Rochester, Minnesota

The practice of medicine is one of the most important activities carried on in society. In years past, the profession has carried on pretty much alone, and although much progress has been made and great things have been accomplished, nevertheless the time has now come when it must be made to realize its position and relationships. It is the duty of the profession to see that all of the people have adequate medical service at a price that they can afford to pay, and it is also its duty to see that the members of the medical profession are reasonably well paid for their services. It was realized some years ago, by those prominent and active in the profession, that inasmuch as the practice of medicine was im-

portant not only to every individual, but also to all organized groups of society and to all governmental bodies, it was imperative that medical activities be carried out by a definite democratic organization. As a result, the American Medical Association was organized, and each state and county formed its component and constituent societies. Many of the county societies in the larger communities have most important duties to perform in meeting their obligations and in constantly striving to see that their communities are given proper medical service. In the less thickly settled sections, the county society, because of its small membership, cannot always carry on an active program.

At the meetings of the state society, members of the medical profession should transact their business. Many problems are of particular interest and importance to one state, but do not especially concern another state. Every doctor in the state has a chance to present or transmit his views, and to make his wants known in the meetings of the state society. After policies have been established, then the delegates from the county societies elect the delegates to the state societies and these in turn elect those to represent the state organization in the national association. Delegates of state societies are at liberty to present any problems or ideas to the House of Delegates of the national organization.

Not all members of the state societies take an active interest in organized medicine. Until fairly recently it was felt by many that the medical profession should not take part in discussions not related to medicine, and above everything, that it should not get into politics. I agree with those who feel that the profession should not enter into the so-called cheap trading state and national political practices that are said to exist, but I am convinced that it is absolutely necessary for organized medicine to take an active part in the generally sincere and honorable state and national legislatures. The best medical service cannot possibly be given to the people, nor can they be protected from the activities of charlatans, unless the legislators are kept informed about what is good and what is not good in medical practices.

The legislative committees of state medical societies should be composed of men who know something about politics as well as about medicine. The legislative committee is probably the most important committee of the state society, and should be supported by all members of the society. Not all will agree on all the policies to be adopted; these should be thoroughly discussed. However, the activities of the committee should not be hampered by restrictions. Thoroughly reliable and conservative men should be chosen for state legislative committees, and they should be on hand at the meeting of the state legislature so as to secure legislation that will make it possible to practice medicine for the best interests of the people of the state. When faulty legislation has been passed, usually the state representative or state senator will say that he had no information on the bill and that he had to vote according to his best judgment, or he will say that the only opinion he had, came to him through the activities of persons whom only physicians could recognize as being insufficiently educated or dishonest. The medical profession must meet this issue and see that state and national legislators are kept informed. Without this information they cannot act properly

regarding who is qualified to practice, what form of practice is good and what kind is not good. They want to know about what has been accomplished in research, and they also want to know to what extent the government should practice medicine. Physicians cannot afford to let pass these opportunities to make known their ideas.

The medical profession is an important factor in society and government. It has accomplished much and it is beginning to realize its relation to the government.

Business in Medicine

Most of those in the practice of medicine have chosen this profession because of their great interest in medical problems. Not many have selected this work because of the financial reward that it offers. Most practitioners of medicine make a fair living for themselves and their families. Most of them are respected and looked up to in their communities. A few unusually successful doctors have made fortunes in practice.

Of course, as soon as a doctor pays more attention to ways of collecting money for his work than he does to the care of his patients, and to improving his knowledge and skill in practice, he is almost certain to make a failure of practice. On the other hand, if he will keep abreast of modern methods and give his patients as good or better examination and treatment than they can get elsewhere, then his success ought to be assured. There is no reason why a physician should not be well paid for his services, and in ordinary times I think he generally is so paid. If, in ordinarily prosperous times, a physician is doing good work, but does not get paid for it, it might be well for him to examine his business methods.

It is difficult to understand why members of the medical profession as a group are such poor business men. There may be something in their everyday life that tends to destroy business sense. I suppose if courses in business were given in medical schools the profession would at once be accused of being commercial: I am not sure but a course that would teach physicians something about business would be a good thing. There can be no question but that the services of members of the medical profession have been greatly abused. They are obliged to respond to calls at any hour of the day or night. For some inexplicable reason the doctor's bill is allowed to run and is the last one to be paid. I do not know why this should be, but it is a fact, and it is possible that poor business methods are largely responsible for this. This problem is being studied all the time, and the solution may rest in different plans for different districts.

For a consideration of medical economics the people of the country may be divided into three groups. The first group is composed of wealthy people who can afford any service and can have anything they wish. I do not believe tht this group as a whole always receives the best medical care. Its members are often ill-advised and sometimes adopt some form of illogical treatment. There has been a tendency on the part of some members of the medical profession to "soak the rich" to help pay for the poor, who cannot pay for themselves. This is not a good

policy, although the rich should be willing to pay a substantial fee after they have been given the very best of treatment.

The second group comprises those people who are making fair incomes and living well, but who are using most of their incomes from day to day so that when they are confronted with sickness in the family, they have difficulty in meeting their obligations. Most members of this group will eventually pay their bills. For those who do not, health insurance may be the solution, in many places.

In the third group are those people whose circumstances are such that they are not able to pay. Many of them want to pay and few really want charity. These people deserve just as good attention as those of any of the groups.

The medical profession has heretofore given its services to all those who could not pay. No business or profession does anywhere nearly as much free work as does the medical profession. The feeling at present is that some way should be found for paying for hospital and medical services for this class of people. The Committee on the Cost of Medical Care has stated through its chairman, in a preliminary report, that perhaps this service should be paid for through taxes raised by the community and the state. If this fails, then it suggests some form of insurance.

This is the most important problem in the medical profession's business just now, and I believe that some plan must be devised for handling it in every community. The plan might vary in different communities. This is a problem for each state society, and I feel that some solution will be reached in the near future.

It seems to me that the community as a whole should be obligated to provide physicians' care for those who are unable to engage physicians themselves. The members of the medical profession should not be expected to bear the entire loss of directing treatment for the indigent sick in their communities. At the present time, local communities, counties, and states provide education and many other things for their people, and I believe that some way should be found to supply adequate medical care and hospitalization for those who are sick but are unable to pay for the needed attention.

President Stevens: Taking up now the regular program for the evening we are ready to hear reports of Committees. The first committee to report is the Committee on Medical Foundation.

Secretary McBrayer: I don't think there is any report. Dr. Matheson is Chairman. I do not think he is present.

President Stevens: We will then ask for the report of the Committee on Legislation. Dr. Lawrence.

Dr. B. J. Lawrence (Raleigh): Mr. President and Members of the House of Delegates: This Committee presents its report under rather trying circumstances in the face of the remarks of the President of the American Medical Association which you have just heard. However, we wish to submit this brief report.

Mr. President—Members of the House of Delegates, Your Committee on Legislation and Public Policy wishes to submit the following Report:

The Legislature of North Carolina has not been in session except for a few closing days of its lengthy session since this House of Delegates last assembled. Consequently, there are no new laws or bills relating to our profession which need your attention. Congress at Washington has been in session and a few matters of interest to you have come up. These have been handled primarily by the Executive Committee acting as a whole and by our most able and illustrious Secretary. Reference to these will be found in his Report direct to you or as a part of the minutes of the Executive Committee meeting held at Greensboro in January, 1932. The chairman of this Committee was invited to sit in at the Greensboro meeting. It was most delightful, strictly business from beginning to end.

I was particularly impressed with the work our Secretary was doing in an effort to have legislation at Washington enacted that would keep the veterans of the World War at home, in local hospital, under local physicians. Your Chairman was privileged to accompany the Secretary with Doctor Holmes' Committee on a visit to Commander Henry Bourne in an effort to solicit his aid and the aid of the American Legion in securing this much needed legislation. It would be impossible to over stress the importance to our profession which the proper handling of sick veterans holds.

At this time I want to thank the Secretary on behalf of the House of Delegates and the profession at large for his splendid and untiring efforts in this and many other matters so vital to our profession.

Before we meet again the legislature of North Carolina will have been elected and assembled—matters of great importance to us all may come up then. One matter relating to public policy that has annoyed us is the suit question. Your committee has conferred with the Attorney General and certain prominent lawyers regarding legislation that might help this deplorable situation, and I want to introduce as a part of this report a motion that our Secretary be employed and directed to secure such aid as necessary and in his judgment wise to secure the enactment of law mitigating against this rapidly increasing suit question. It has been suggested that our Secretary send a questionnaire to candidates for the legislature, asking their views on questions pertaining to our profession.

Finally as a matter of general interest and public policy I would like to call the attention of our members and of this House of Delegates to the fact that we are each others keepers—that our interests are one—and as such we should guard jealously our actions and remarks toward our fellows.

The public at large will judge us by the standards we set up. They honor and respect us in proportion to that which we pay each other. As Chairman of this Committee which relates to matters of public policy I feel that I must mention the fact that the relation between the Industrial Commission and our profession is not as smooth as it ought to be. I think it has improved some—but there is still room for a greater improvement. The Commission does many things that I do not approve of—but they are not responsible for all of our difficulties—and sometimes we have blamed them for matters which we should straighten out

among ourselves. Last year our president appointed a committee to go over the fee bill with members of the Industrial Commission and arrange an agreeable schedule of fees. The chairman of this committee was not on that committee appointed by our president. However, I was asked to sit in at the hearing and by invitation I did attend the meeting—and for your information I wish to say that at every point where the members of our own profession all agreed the commission placed the fee as agreed. And at every point where there was a difference of opinion as to what a given fee should be—the commission placed the fee at the lower level. Now in fairness to them, it is a very human thing and a reasonable position for a group of laymen to take—I therefore charge you as members of our great profession, in the interest of public policy and for our common good, as far as it is possible for us to do so, let us agree—let us present a solid and united front to the public and go marching on to greater achievements as a profession and for the upbuilding of health and happiness in North Carolina.

Respectfully,

J. W. M. Long,
J. T. Burrus,
B. J. Lawrence, *Chairman.*

President Stevens: You have heard the report of the Committee on Legislation. What shall we do with it?

. . . Upon motion duly made and seconded it was voted that the report of the Committee on Legislation be adopted. . . .

. . . The members of the Society arose and applauded as Dr. Judd left the room. . . .

President Stevens: I would like to ask whether Mrs. W. B. Waddill, President of the North Carolina Social Service Conference is in the room. Is Mrs. Waddill in the room? If so will she come forward, please? We will now be honored by a message from Mrs. Waddill, President of the North Carolina Social Service Conference. Mrs. Waddill. (Applause)

Mrs. W. B. Waddill: Mr. President and Members of the House of Delegates: It looks like I might have a paper here but I haven't. I am only going to take a very few minutes of your time. I have been requested by the Health Committee of the North Carolina Conference for Social Service to bring a matter to your attention and am grateful for the courtesy extended me at this time in giving me a few moments in which to present it.

I wish to mention just here the members of this very valuable Health Committee of our Conference headed by Dr. Cooper of the State Board of Health. The other members are Dr. McCain of the Sanatorium, Dr. Bulla of Wake County, Dr. Davison of Duke, Dr. Sidbury of Wilmington, Dr. Taylor of High Point, and Dr. Watkins of Winston-Salem.

The Welfare Superintendents of the State, of which I am one, and the North Carolina Conference for Social Service, of which I happen to be President this year, are tremendously interested in getting a better marriage law—one that will really prohibit the marriage of idiots, imbeciles and feeble-minded and those suffering from venereal disease and epilepsy.

The present law has served a good purpose in showing that North Carolina applicants for marriage licenses should be physically and mentally fit, but the requirements of it are so worded that it has become a mere scrap of paper. It is a well-known fact that it does not prohibit, but that instead feeble-minded, socially diseased and epileptics can get married and are doing it in every county in North Carolina and are reproducing their kind, increasing in large numbers an unfit population, who are the worst of our social problems as well as an economic liability, as their cost to the taxpayer is enormous.

I have come before you tonight to ask your consideration of the endorsement of some changes in the marriage certificate law which will differ from the old one in the following respect: requiring the same physical examination of both man and woman, including a Wassermann blood test and prohibiting the marriage of epileptics; this to be passed upon by a physician as at present, as well as the fact that in his opinion the applicant is also of sound mind; having a Board of three county officers—the Clerk of Court, County Physician, Welfare Superintendent, or any two of them—to have final approval concerning the mental capacity, as this Board would be familiar with court records, etc.

The changes are not so great but would strengthen the law and make it effective in doing what it was intended to accomplish.

The objection will be raised by some that the law will still be evaded by parties going into Virginia and South Carolina where no physical examination is required, and of course some will do this on the border counties especially, but that is no reason why North Carolina should not set a standard. If this is done it will not take a great while for the requirements to be so well known that questions will be raised in everybody's mind concerning those who evade the examination. The length of time required for a blood test will be a deterrent to the hasty and unwise marriages, which will be good, we think.

An attempt was made by a Committee from the Conference to get this new marriage law passed at the last legislature, but without success as it was not a good session for any social legislation, as perhaps many of you will remember, but the same matter will be stressed again next year.

Now this proposed law is to come up for approval before the annual meeting of our North Carolina Conference for Social Service which will be meeting just a week from today in Durham—next Monday and Tuesday—but we wish very much to have you people consider it ahead of us, ahead of the Conference.

I am sure that all of you are familiar with the law that has been in existence for several years. I will not read that, but I will read the changes just as we wish them embodied in the Section.

"Section 1. 2500 (a). No license to marry shall be issued by the register of deeds of any county except upon the presentation of a certificate by a regularly licensed physician executed within seven days from the time of the presentation of said certificate, containing a finding by said physician and showing the non-existence of any venereal disease, including negative blood test, the non-existence of tuberculosis in infectious stages, the non-existence of epilepsy and that in the opinion of said

physician the parties to said proposed marriage are of sound mind, and that neither is an idiot, imbecile or feeble-minded, or that the operation provided by Chapter 34, Public Laws of 1929 has been performed upon the applicant or applicants for said marriage license, and supported by a formal finding to the same effect by a Board composed of the Clerk of the Superior Court, the County Health Officer or county physician; and the Public Welfare Officer, or person serving in such capacity in said county. The Clerk of the Superior Court shall act as chairman of said Board, and upon presentation of certificates as above set out, signed by a physician as required, he shall call said Board, or any two of them, into session, who shall examine into said application for marriage license and make findings as to whether the certificate issued by said physician is in accordance with the facts. No license as aforesaid shall be issued for any marriage except upon formal finding by said Board in support of said physicians's certificate."

That concludes the paragraph of the law.

"The findings referred to above may be in the following form:

NORTH CAROLINA }
..... COUNTY. }

We, the undersigned Clerk of the Superior Court, County Health Officer, or County Physician and County Superintendent of Public Welfare of said County, do hereby certify that in accordance with Consolidated Statutes Section Two Thousand Five Hundred (a), we have examined into the application of..... ..... and ..... for marriage license to the Register of Deeds of said county, and find that none of the impediments to said marriage exist as set out in Consolidated Statutes Section Two Thousand Five Hundred (a).

.....
.....
.....

I feel that a word or two of explanation about this Board might clarify this situation a little bit. The main points, as I have stressed, are the same examination for man and woman, a better examination for venereal disease, including the Wassermann blood test, requiring a negative test, and the inclusion of the epilepsy clause which was not in our old law. Those are the main things.

Then there is a help to the physician in the mental check that will be provided by this County Board. It seemed necessary because the mental state is not known to so many of the physicians. Sometimes perhaps a person will pass a very good physical examination but be totally mentally unfit, and that may not be well known to the physician unless the person is well known to him.

We felt it was almost necessary to include in this law some board that could pass upon this and to get one that was workable and available. So it seemed best to us to have the Clerk of the Court, the County Health Physician and the County Welfare Superintendent, because they certainly are in touch with all the court records and have the records of those who have been given mental tests.

For instance, there is quite a long list in my office as a county welfare worker of those who have a very low I. Q. of perhaps 40, 45 or 50. We know they should never be allowed to marry unless they have been properly sterilized, because they will only increase the social problems in our county.

This board seemed to be an available one because the members of it are accessible; they are in the court house, and very convenient to the office of register of deeds.

I want to say that while this law has been examined by many physicians over the state and has gained their approval, it has also been passed upon in its legal aspect by the Attorney-General, Mr. Brummitt, who thinks that it is correct so far as the wording of it is concerned.

Several of the physicians have asked me to add to the prohibition the marriage of first cousins. We have not done that because I do not know whether it would be advisable to ask for too much. We had enough trouble at the last legislature and perhaps will have more at this one (I hope not any more but certainly we will have some) to get it passed.

However, if we can get the approval of this body concerning this law, I feel that it will lend added strength. Then if the Conference for Social Service passes upon it favorably, which I have no doubt they will because they have practically done this before through one or two of their committees, we can go before the legislature with the endorsement we feel of the most important people in the state.

Certainly there is no one in North Carolina that has a more important function in the working out of this certificate than the physicians of the state, and if you people would look upon it favorably and endorse it, I should certainly be most appreciative and I am sure that the Conference would be, too.

I should like to take the message on to them that you do feel favorably about it. Perhaps some of you have some changes that you would like to make in it. It may not be worded as you think best. Certainly we will be very glad to consider that. However, we have worked upon it pretty hard in trying to clarify the points as best we could.

It certainly is not necessary for me to say anything to a body of medical men about the medical value of these changes, but its social bearing is very great because we who are doing social work in the counties know what an enormous number of unfit children are being born in our counties. I haven't the time to give you these statistics, but it is simply staggering when we know how the feeble-minded people are being allowed to marry and are bringing the same kind of people into the world, people who are a burden upon the community and upon the taxpayers. Its social bearing is a thing that could be discussed for hours.

In its economic aspect it will have a very perceptible effect upon taxation, and that is certainly one of the important things for us to consider at this time.

Just after I had spoken before the Public Health meeting this afternoon on this same question, Dr. Bagby of Richmond called me and said,

"I hope it won't be very long before we will be able to say in Virginia that people cannot come out of North Carolina into our state to evade physical examination, because we are going to have the same thing in our state, and we hope to get it passed at the next session of the legislature."

He wanted to know something about our sterilization law, and I told him we had a most excellent one and gave him a copy of it. Our sterilization law is not being used very extensively just on account of the ignorance of the need on the part of the public, but we do have a good one, and you will notice in the provisions of this new law we have tied the requirements of this marriage certificate right in with the requirements of the sterilization law, because it does not prohibit the marriage of feeble-minded people if they have had this sterilization operation performed upon them.

Of course there are many angles about this to consider, but I have mentioned the most important ones and feel that I cannot take more of your time, and I thank you very, very much. (Applause)

President Stevens: You have heard this very interesting address by the President of the North Carolina Social Service Conference. Does the House of Delegates want to take any action regarding the important matter Mrs. Waddill has presented?

Dr. J. T. Hoggard (Wilmington): Mr. President, I move that we refer it to a Committee appointed by the Chair.

. . . A voice from the audience suggested that it be referred to the Legislative Committee. . . .

President Stevens: Is that agreeable to you to refer it to the Legislative Committee?

Dr. Hoggard: Legislative Committee, I think, would be all right.

President Stevens: Is there any discussion of the question?

Dr. John A. Winstead (Nashville): Before a matter of this importance is referred to a legislative committee for its action, I feel it should have discussion on the floor of the House of Delegates.

I listened carefully to the proposed law as she read it. I have felt since the enactment of our present law that it was ineffective because it didn't affect both parties equally. To that extent I agree with her.

I think the wording of her proposed law is ambiguous in that it suggests a blood test. While it suggests a blood test it does not say whether that blood test shall be for malaria, syphilis or whatnot.

. . . Several members cried "Wassermann" . . .

Then I think furthermore, Mr. President, that when you appoint a board consisting of the clerk of the court, etc., that you are getting the thing again into politics. Any one of you knows that the clerk of the court in your county is a politician. In my particular county his family has held office for 34 years. That is political suffrage.

I think that you want to get folks who are away from politics, away from political suffrage if you want the law to function. Get it on a basis out of politics and into the true status of affairs, namely, "Have this couple the right to be married?"

As far as your welfare officer is concerned, if he or she is a proper

type of person, they have the information, and they are going to use it to the best of their ability. However, again, if you are the welfare officer of Vance County you hold that position as a result of politics, of political suffrage, and if you go against the voice and the will of the people who appoint you, you are fired. That is a fact.

So get it away, get it out of political suffrage and put it on the basis of merit. Gentlemen, that is what I have to say. (Applause)

Dr. John G. Murphy (Wilmington): As medical men we should be more interested in this subject than any other class or any other profession. This is aiming at something good and something that we need. The requirements of that law, as I see it, are good, and I believe it is workable.

I listened to the reading of it and I thought it said a blood Wassermann. Of course that is for this legislative committee and that committee will look it over and see that it is in the right form. If it has been passed on by the Attorney-General, Mr. Brummitt, I have confidence in it and I believe it will be workable and I believe it is such as will pass the legislature and I am heartily in favor of it.

Dr. V. M. Hicks (Raleigh): I think there are none of us who will minimize the importance of this proposed measure, but I do think that we are all agreed that the details of the matter are hard to work out in an organization of this size. The Legislative Committee has as its function the carrying out of the wishes of the State Medical Society. It seems to me then the only group that will be best fitted to investigate the advantages and disadvantages in this particular bill is our Executive Committee, who then can use the facilities of our Legislative Committee in carrying out its wishes.

The ability of the Executive Committee to handle such matters has been well demonstrated by the reading of the minutes of their meetings held during the past year. I therefore move, sir, that this matter be referred to the Executive Committee. I make that as a substitute motion.

Dr. Winstead: I will second that motion, Mr. President.

President Stevens: A substitute motion has been offered that this matter be referred to the Executive Committee instead of to the Legislative Committee.

Dr. Hoggard: Mr. Chairman, I will withdraw my motion if my seconder will, and endorse that substitute motion.

President Stevens: Is there any further discussion? If not, the motion is that this matter that has been presented by Mrs. Waddill be referred to the Executive Committee of the State Society. Does that mean with power to act?

Dr. Hicks: Yes, sir.

President Stevens: With power to act.

Is there any discussion?

Voice: It seems to me that the Executive Committee's findings should be reported back to the House of Delegates.

President Stevens: Before voting let us understand what we are voting on. Is it to refer to the Executive Committee with power to act or to the Executive Committee for consideration?

Dr. Hicks: The original motion was that this matter be referred to the Executive Committee with power to act.

Dr. C. B. Williams (Elizabeth City): What sort of action are they supposed to take? I have never seen so much excitement and exercise over Wassermann. I am not exercised about it, but I have never seen so much excitement over it. I happen to know some very fine folks who have positive Wassermann and are married with good families and all that sort of thing, and I advise you to go slowly; although my last Wassermann was negative. (Laughter)

President Stevens: Are you ready for the question? All in favor of the motion please say "aye"; those opposed "no." The motion is carried. The matter is referred to the Executive Committee with power to act.

We will now go back to the matter of reports of committees.

Is the Committee appointed for the purpose of conferring with a like committee from the State Hospital Association in regard to collection of hospital bills and professional fees in other states ready to report?

Dr. R. B. Davis (Greensboro): We should like to make a report tomorrow or the next day if it meets with your approval.

President Stevens: That will be granted.

We are now ready to receive reports from Councillors. Dr. Williams of the First District!

Dr. C. B. Williams (Elizabeth City): All the component societies of the First District have had quarterly meetings during the last year. In all cases these meetings have been well attended and a good number of papers of a high order were read and discussed. In many instances some outstanding member of the profession from outside the district read papers.

The district has had two meetings—a joint meeting with the second district at Bay View in October, 1931; the other at Elizabeth City in March, 1932. These meetings were well attended and were a decided success from both a social and educational standpoint. The membership in the First District is harmonious, progressive and happy. Organized medicine is safe in the First District. (Applause)

President Stevens: Report from the Second District, Dr. K. B. Pace, Councillor.

Dr. K. B. Pace (Greenville): Mr. President and Members of the House of Delegates: The Executive Committee meetings have been very pleasant and profitable, and due to the untiring effort of our President and Secretary we think a great deal has been accomplished. As has been stated by the Secretary, the object of these meetings is to carry out your wishes. It is your Society and we are working for you.

I wish to report that everything is moving on nicely in the Second District. We have had three district meetings during the year. Some of the counties hold regular monthly meetings in spite of rain, sleet or snow. Others have them every two or three months.

We hope within the next year to have more counties on regular monthly meetings and have every man who is eligible in the Second District become a member of the County Society and in turn of the State Society. (Applause)

PRESIDENT STEVENS: We will have the report from the Third District, Dr. Hoggard.

DR. J. T. HOGGARD (Wilmington): Mr. President, we have an active District Society. We also have active County Societies. We endeavor at all times to have a meeting of the District Society every three months. Everything, I think, is working along smoothly and harmoniously in the District. (Applause)

PRESIDENT STEVENS: Report from the Fourth District, Dr. Strosnider.

DR. C. F. STROSNIDER (Goldsboro): The Fourth District Medical Society has had four meetings since the last annual meeting of the State Medical Society. All of these meetings were splendidly attended. The scientific programs were excellent and the attendance was good.

I have visited seven of the eight societies in my district and find them to be well organized and presenting programs the equal of societies many times their size. Several of the societies of the Fourth District are trying to solve the problem of the school repeating children in their jurisdiction.

Consistent progress is being made along all lines of endeavor in our profession as is evidenced by constructive work being done as individuals and collectively.

I am pleased to report that there is no friction existing in the Fourth District. If there was, the noble manner in which the profession is meeting the large demands of caring for the indigent sick would soon dispel the same. (Applause)

PRESIDENT STEVENS: We will now have a report from the Fifth District, Dr. Holmes.

DR. A. B. HOLMES (Fairmont): I am indeed glad, Mr. President, to report that organized medicine is sailing on an even keel in the Fifth District. We have a very active District Society which meets twice yearly; strong and active County Societies in practically every county with at least 97.2 per cent of all the practicing physicians in the district who are members.

There seems to be no discord in the District. (Applause)

PRESIDENT STEVENS: Report from the Sixth District, Dr. Coppridge.

. . . Dr. Coppridge was not present. . . .

PRESIDENT STEVENS: Report from the Seventh District, Dr. Brenizer.

. . . There was no response. . . .

PRESIDENT STEVENS: Report from the Eighth District, Dr. Redfern.

DR. THOMAS C. REDFERN (Winston-Salem): Mr. President and Members of the House of Delegates: I have to report only that in so far as I am able to determine, the affairs of the Eighth District are very harmonious. There is no discord. We have had two District Society meetings since the last meeting of the State Society.

I would like to take occasion at this time to pay my respects to the Guilford County Society which is a member of the Eighth District, and to say that it is one of the best county medical societies that I know of anywhere in the United States. That is, of course, second to Forsyth County. (Laughter and applause)

PRESIDENT STEVENS: We will now have the report from the Ninth District, Dr. Adams, Councillor.

DR. M. R. ADAMS (Statesville): Mr. President.

The annual meeting of the Ninth District Society was held in Lexington on the 24th of last September with a good attendance. The annual meetings are the most important events of the entire year, and invariably we have a good attendance and a good program with interesting and instructive papers, both of medical and surgical nature. We were fortunate in having Dr. M. L. Stevens, President of the State Medical Society, who made an interesting address.

The banquet given by the doctors of Davidson added greatly to the social feature of the meeting and was greatly enjoyed.

Peace and harmony, so far as I know, prevail in the district. (Applause)

PRESIDENT STEVENS: Report from the Tenth District, Dr. Greene.

DR. J. B. GREENE (Asheville): Mr. Chairman.

The Tenth District Medical Society held its meeting in Canton, October 7, 1931, with an attendance of ninety-six, the largest in the history of the Society. All papers were presented in the afternoon and Dr. Snydenstricker of the University of Georgia, the invited guest, presented an interesting paper on "Hypertension."

The evening program was held after the dinner at the Imperial Hotel. At this gathering we were honored by an address by Dr. J. M. Parrott, Secretary of the State Board of Health and also one by our esteemed President, Dr. M. L. Stevens.

Before adjournment the election of officers resulted in the following:

President: Dr. J. L. Reeves, Canton.

Vice-Presidents: Dr. J. F. Jones, Marion; Dr. B. F. Cliff, Hendersonville; Dr. G. A. Morgan, Asheville; Dr. A. P. Willis, Candler; Dr. J. N. Moore, Marshall; Dr. A. A. Nichols, Sylva.

Secretary: Dr. A. C. McCall, Asheville.

The next meeting will be held in Hendersonville on May 11, 1932. (Applause)

PRESIDENT STEVENS: A committee that has not yet reported is the Committee on Printing and Supplies. Is Dr. McCain in the room?

DR. P. P. MCCAIN (Sanatorium): The Committee received bids from several concerns on the printing. The lowest bid was submitted by the Seeman Printing Company of Durham for $1,750. That included the TRANSACTIONS, 1775 copies, and also 3,000 copies of the program. The bid in 1931 was $1900. It used to be that the programs were extra, amounting to something over $100. So we feel that that was a splendid bid.

PRESIDENT STEVENS: The House of Delegates is now ready to consider any new business. Has any member of the House any new business to present?

DR. R. B. MCKNIGHT (Charlotte): Mr. President, since the last meeting of the Society and since the election of the delegates by the Buncombe County and Mecklenburg County Medical Societies, Dr. Julian A. Moore, a member of the Buncombe County delegation and myself from the Mecklenburg County delegation have gotten together

and drawn up a motion which I wish to present in both of our names to the House of Delegates.

Last year the Industrial Commission conferred with a committee from this Society and reduced the medical and surgical fees considerably. We believe that the original schedule of fees agreed upon by the Society and the Industrial Commission was reasonable and just, with a few exceptions, which should have been revised.

We believe further that the new schedule of fees is far too low in most instances. We, therefore, offer the following motion:

First, that the President appoint a new committee from this Society composed in part of surgeons doing industrial work, the functions of this committee to be:

(a) To study thoroughly the compensation law;

(b) To study the compensation fees in other states;

(c) To meet and agree among themselves on a fee schedule that will be just and reasonable to the physicians, the insurance companies and which will compare favorably with fee schedules in other states;

(d) To obtain a hearing with the Industrial Commission and make a concentrated effort to secure their agreement and approval of the fee schedule submitted;

(e) To report the results of their work and accomplishments to the Executive Committee of this Society through its President and Secretary; and

(f) To request the Executive Committee to send a copy of the new fee schedule to every fellow of this Society, and if received in time to have same printed in the forthcoming volume of the transactions.

Second: That the actual expenses incident to the work of this Committee shall be paid by the Secretary-Treasurer of this Society when approved by the Executive Committee.

Respectfully submitted,

JULIAN A. MOORE, Asheville,
R. B. MCKNIGHT, Charlotte.

DR. ADDISON G. BRENIZER (Charlotte): Mr. President, may I tell Dr. McKnight and also remind the President that there was such a committee appointed from the Executive Committee of the State Society, who met with the Industrial Commission and thrashed through this list of fees. I thought that the Industrial Commission and this Committee did this thing in justice to both sides. Those fees were modified somewhat but not very much.

The only fee that I am very much interested in was the fee for hernia operations, and that was reduced. Otherwise the fees were, I thought and I think most of the members of the Committee thought, settled with fairness and justice to both sides.

Dr. Addison G. Brenizer (Charlotte) Councillor 7th District: I didn't respond a while ago due to my lack of hearing and not the President's voice. I did not hear you when you called on the Seventh District for its report.

That has already been done. We might remind Dr. McKnight of that. I think that, considering the condition of money affairs nowadays, that those fees are fair to all parties concerned. That Committee, the President will remember, has already met with the Industrial Commission and has already made its report.

President Stevens: Is there any further business?

Voice: There is a motion before the house.

President Stevens: It has not been seconded.

Dr. C. B. Williams (Elizabeth City): I second the motion.

President Stevens: The motion presented to adopt has been seconded and is now open for discussion.

Dr. John A. Winstead: Mr. President, in view of Dr. Brenizer's statement, I move that the motion be tabled for one year, pending the hope that we will come out of the depression in the year.

. . . The motion was seconded by Dr. Banner. . . .

President Stevens: The motion to table has been seconded. A motion to table is not debatable, so it will be put. All in favor of tabling the motion for one year please say "aye"; those opposed "no."

I will call for a rising vote. All in favor of tabling the motion for one year please rise.

. . . Those in favor of tabling the motion arose and the count of them by Secretary McBrayer showed 42. . . .

President Stevens: All opposed to tabling the motion please arise.

. . . The count of those opposed showed 14. . . .

President Stevens: The count shows that 42 voted for tabling, 14 voted against it. The motion is tabled.

Any further business to come before the Association?

We are still existing down there about Charlotte and surrounding territory and we have a little program down there that we have some pride in. It is a question of relating the whole district as one, using the library which is located in Charlotte, giving everybody access to it, putting on a little economical program as a means of collecting bills, which is somewhat important nowadays, because we don't have all cash business.

That is the program that we have been carrying out in the Seventh District. I am sorry, Mr. President, I did not speak up at the proper time. Thank you. (Applause)

REPORT COUNCILLOR SIXTH DISTRICT

No matters of importance have arisen in this district during the year All of the county societies have been visited except Wake and a visit to this society is contemplated in the near future. The discussion of all of the matters that have come before the executive committee has been had

in the various county societies in this district and their help and coöperation has been asked for.

Respectfully submitted,

W. M. Coppridge,
Councillor, Sixth District.

President Stevens: Is there any other new business?

Dr. J. A. Winstead (Nashville): Mr. President, I am again instructed by the Nash-Edgecombe Society to bring before the House of Delegates the question of this House of Delegates going on record favoring a law which would permit the legalized handling of whiskey by drug stores on physicians' prescriptions. (Laughter) I am going to make this motion, gentlemen, if there isn't a soul here to hear it but me. For that reason I move that the House of Delegates take a roll call vote on the question as to whether or not the drug stores in North Carolina shall be permitted to handle whiskey on physician's prescriptions as it is handled in a majority of the other states of the union.

President Stevens: Is there any other new business?

Dr C. B. Williams (Elizabeth City): May I ask if he made a motion?

President Stevens: Yes, but it was not seconded.

Dr. Williams: I second the motion.

President Stevens: The motion is seconded and it is now open for discussion.

Dr. Williams: I want to discuss that just a moment. I have been hearing about the medical profession endorsing this legalized prescribing of whiskey in drug stores for some years. I don't think it is very important whether they dispense whiskey in drug stores or not because you can get it anywhere.

One of the arguments that I have heard against that proposition came from the Chairman of the Pharmaceutical Association, that he was opposed to it. The truth about the matter is it does not make any difference if drug stores are opposed to it. They don't have to take out a license and dispense liquor. We should not be influenced by what the druggists say about that.

I have heard it advanced in this meeting that people should be allowed to have whiskey—some older people; I think somebody said that physicians should be allowed to prescribe whiskey for the old, infirm people. I think that is about the only excuse they have had for doing that.

When the question came up in Congress a physician in Norfolk telegraphed his Congressman, Mr. Langford, saying, "You had better see that the druggists handle a better grade of liquor than they do." I agree with that. (Laughter)

Now there is not much opposition from the good people, from the church people, to handling liquor in drug stores. The last meeting that we had, I think in Durham, I saw several members, prominent and lead-

ing members, of this Medical Society get very much exercised about that matter. You will all remember that.

Really and truly there is not any special reason why we as a medical profession should have any reason to object to them handling liquor in drug stores and we prescribing the liquor.

I live 47 miles from Norfolk, Virginia. All the drug stores in the State of Virginia handle liquor. Dr. Sawyer over there lives in the same town with me and so does Dr. Walker. They can bear me out. The drug stores in Virginia have the privilege of dispensing liquor on a doctor's prescription. There has never been any criticism in the city of Norfolk from the Ministerial Union or any other union as to the way it was handled.

You can go into any drug store in Norfolk, Virginia and stay in that drug store three or four days and you will not be aware of the fact that there is any liquor being dispensed there.

I remember when that question was up before the legislature in North Carolina one of the leading papers of this state said this, "You little drug stores, don't you cry, you will be a bar room by and by." I hope that no member of this medical fraternity was influenced by such hoakum as that. That is all poppycock.

Any of you fellows that are very much opposed to dispensing liquor in drug stores—you haven't got any reason to fear from that. Did you ever live near a town in which that law prevailed? You ask any ministerial union in any city in the State of Virginia if they object to dispensing liquor in drug stores. Very likely they will tell you no.

I have read the morning paper of Norfolk, Virginia for 30 years every day. I have never seen the slightest criticism of their liquor problem in that from any one.

Now you needn't be afraid. Drug stores are not going to be bar rooms when it costs $2 for a prescription and $1.75 for the rottenest liquor that you ever drank. (Laughter) Listen, this fraternity of medical men, educated men, should not be fooled in that matter. There is no reason in the world why the drug stores in North Carolina should not dispense liquor on our prescriptions.

I used to resent the idea that I was restrained from prescribing liquor for my patients. I have heard good men on this floor, some of the best physicians in this Medical Society, say that they have run hospitals, they have practiced medicine for 20 years and they have not prescribed liquor for anybody because it wasn't necessary.

Well, we had a referendum by the journal of the American Medical Association, and over 50 per cent of those fellows said they had found liquor advantageous in their practice. I resent the idea. I don't care whether you have liquor in North Carolina in the drug stores or not; it makes no difference to me. If I had a patient I thought needed liquor I could go to the nearest filling station or the next one down there and get the liquor. There is no question about that.

However, when doctors stand up in this Medical meeting, and I have seen them time and time again—good men, strong men, conscientious men, good physicians—and say that liquor was not necessary in the practice of medicine, I say they are wrong. I have been practicing

medicine for 30 years and I can claim the distinction of saving one life through prescribing liquor. I don't want any doctor in this Medical Society ever to point his finger at me and say that you can't prescribe liquor because it is of no use. That is a province in which he dare not tread.

Whiskey is a stimulant. I don't care whether they have whiskey in the drug stores. I think that is a matter of little importance to us physicians and I don't think we ought to discuss it any longer. However, when one physician gets up and tells you, Dr. Stevens, that you haven't got any results with a certain drug, you can just pass it back to him and tell him nobody has a right to say what I will prescribe or what any other doctor who has a license in North Carolina will prescribe.

Dr. D. A. Garrison (Gastonia): There are just a few things I would like to say. The whiskey business is a law and stands on the statute books as a law. I can't think of anything that fits this thing any more than the old Englishman who was making a speech and there was a fellow back there interrupting him every few minutes and saying, "We want free land, we want free land." He turned around and said, "Tommy, take that man out of here." Tommy took him out. The Englishman got through speaking. Then he called to Tommy and said, "Tommy, what did you do with that fellow who was wanting all of that free land?" He replied, "I kicked him in the bolix and asked him how would that do for two acres." (Laughter)

This is a regular two acre proposition you are on, and it has been kicked and has been knocked and it is not worth a continental thing in medicine.

Dr. Jennings: I have no wish to be heard either for the drys or the wets, but I do believe that the medical fraternity of North Carolina are level-headed men. I don't deem it necessary that Tom Smith or Jim Herron or any other man should designate to me the authority to say when I should or when I shouldn't vote for a question. This, as I take it, is a meeting of the medical fraternity of North Carolina. It is a meeting whereby the thoughts of American citizens and doctors of the State of North Carolina should be registered.

I am neither for nor against but I do believe that we should do this—that we should have authority to say what we are doing. It has been said that we have no authority to prescribe alcoholic stimulants. In my practice of about 19 years I have prescribed various and sundry agencies, and some of them have been alcoholic, that is alcoholic agencies.

I don't think it is expedient for Dr. Adams or any one else to tell me what I should prescribe for a patient.

. . . The question was called for. . . .

. . . At the request of the Secretary, the reporter read Dr. Winstead's motion. . . .

President Stevens: The previous question has been called. It is not debatable. Shall the previous question be put? All in favor please say "aye"; those opposed "no." It is carried.

Dr. Williams: Has discussion ended?

President Stevens: The vote ended the discussion.

. . . A motion was made that the motion be tabled, which was seconded. . . .

Dr. Addison G. Brenizer (Charlotte): Those motions won't be any good at all. There is a federal law against the selling of liquor though it is being sold in large quantities and being consumed in large quantities.

President Stevens: A motion to table is before the house and it is not debatable.

President Stevens: A motion has been made to table the question. That motion is not debatable. All in favor of tabling the motion please say "aye"; those opposed "no." The motion is tabled.

Dr. R. E. Smith (Mt. Airy): May I introduce a motion?

President Stevens: Yes, indeed.

Dr. Smith: This is a motion that was introduced at the Medical Society of Virginia at its last meeting and passed:

"Whereas, there is no profession more deeply interested in the temperance and high moral standing of its own members, or in the temperance of the people as a whole, than the medical profession, nor has any other profession been so affected by the so-called Prohibition Amendment; therefore this resolution is presented to the Medical Society of North Carolina calling for an expression by its members of their opinions on the repeal of the Eighteenth Amendment to the Constitution of the United States, now therefore be it

"Resolved:

"1. That this Society favors the submission of this question to its members;

"2. That the Secretary be and hereby is instructed to mail to each member of the Society before December 1, 1932, a ballot printed under this resolution marked:

"For or Against the Repeal of the Eighteenth Amendment."

To be marked and also signed by such members, for the purpose of evidencing his membership in the society, together with a stamped envelope addressed to the Secretary of the Society to be mailed not later than December 1, 1932.

"3. That the Secretary of the Society forthwith tabulate the vote and forward the result thereof to the President of the Society and give the same to the press."

In other words, that just leaves it up to the members of the Society. Let the Secretary mail them a ballot and let them vote as they please and then let it be recorded.

That is my motion and it is a motion that was presented before the Medical Society of Virginia on November 16, 1931.

Dr. J. A. Winstead (Nashville): I want to second that motion.

Dr. V. M. Hicks (Raleigh): I move that the resolution be tabled.

President Stevens: A resolution has been made and duly seconded, and Dr. Hicks moves that the resolution be tabled. Is the motion to table seconded?

. . . The motion to table was seconded. . . .

Dr. Winstead: Mr. President, the motion to table is not discussable. May I ask that this motion to table be taken by a roll call vote? I think that the House of Delegates has a right to express itself as a legally constituted House of Delegates.

President Stevens: A motion was made and seconded. That opened it for discussion. Dr. Hicks moved that it be tabled. The motion to table was seconded. A motion to table is not debatable and must be put, so I will have to put the motion to table and the House will have to decide then whether or not it wants it tabled or whether it wants to open up the question for discussion.

Dr. Winstead: May I ask you again, sir, when you mention the term "house" you are speaking of the House of Delegates of the North Carolina Medical Society, aren't you?

President Stevens: Yes, sir.

Dr. Winstead: Am I out of order when I ask that that be by a roll call vote?

President Stevens: I would have to rule that the vote be taken in the usual way unless the House decides by vote that it wants it otherwise.

Dr. R. E. Smith: Mr. President, this has been seconded.

President Stevens: This is not debatable. All in favor of the motion to table please say "aye"; opposed "no." I will call for a rising vote. All in favor of the motion to table please rise.

. . . Dr. McBrayer then proceeded to count those who had arisen. . . .

. . . The count showed 48 voting in favor of the motion to table. . .

President Stevens: All opposed to tabling the motion will please rise.

. . . The count showed 31 voted against tabling. . . .

President Stevens: The vote was 48 in favor of tabling and 31 against. The motion is tabled.

President Stevens: The Chair ruled that the vote should be taken in the usual way. Shall the decision of the Chair in that matter be sustained? Those in favor of sustaining the decision of the Chair please say "aye"; those opposed "no."

Again I call for a rising vote. Those in favor of sustaining the decision of the Chair please rise.

. . . Forty-nine members arose. . . .

President Stevens: All who do not support the decision of the Chair in that matter please rise.

Secretary McBrayer: Mr. President, there didn't seem to be but four voting against.

President Stevens: The decision of the Chair has been sustained. (Applause)

Dr. John K. Pepper (Winston-Salem): It is difficult to make a motion that you don't have some idea at least as to how it will be received. I certainly hope that my proposal won't cause any such furore as we have just passed through.

I am going to make a proposal in the form of a brief resolution. I don't know whether I am wholly in accord with it or not myself. I am simply voicing the pleasure of my county society in presenting this matter for your consideration to the House of Delegates.

Briefly my resolution is this: That the present state dues required from the county societies be materially reduced. I move the adoption of the resolution.

DR. WINSTEAD: I will second that, Doctor.

PRESIDENT STEVENS: Dr. Pepper moves that—

DR. BONNER: I rise to a point of order. There is nothing definite in "materially reduced."

DR. PEPPER: Mr. President, I used the phrase "materially reduced" for the reason that I would rather the House of Delegates would specify the amount of the reduction, but if it seems preferable that I be more specific in my request I will embody in that motion that the dues be reduced from $5 a year to $3 a year.

DR. J. A. WINSTEAD: And I will second that amended motion.

PRESIDENT STEVENS: Dr. Pepper's motion is that the dues to the State Medical Society be reduced from $5 per year to $3 per year. That motion has been seconded and is open for discussion.

DR. T. W. M. LONG (Roanoke Rapids): If it is humanly possible for us to reduce our dues, I am in favor of it. I am not sufficiently informed, however,—and I am confident that there are a number of the members of this House in the same fix that I am—as to whether we can carry on the State Medical Society without putting it in jeopardy if we reduce our annual payments.

I would like to ask the Secretary what it cost last year, for instance, to run the State Medical Society and what the dues received amounted to. Then I could intelligently vote on a reduction. How much surplus have we got?

SECRETARY MCBRAYER: Mr. President, the Society runs for the next twelve months on what money it has in hand at this time, and the total funds on hand at this time are $7,699.29, $5,000 of which is on certificate of deposit and $2,699.29 is on checking account.

DR. H. B. HIATT (High Point): What did it cost to run the Society last year, Dr. McBrayer?

SECRETARY MCBRAYER: According to the financial statement it is—

DR. LONG: What were the gross receipts?

SECRETARY MCBRAYER: The actual receipts were $7,305. The total disbursements were $9,168.22. Among the expenditures was a check for $2,500 for a certificate of deposit. So you subtract the $2,500 and it leaves $6,668.22, which is the total expense.

DR. WILLIAMS: What bank?

SECRETARY MCBRAYER: Page Trust Company.

DR. LONG: What I am trying to get fixed in my mind is what the gross receipts were for last year. Were they less than $7,000?

SECRETARY MCBRAYER: They were $7,305.

DR. LONG: And the net cost of running the State Society was more than we took in. Is that true?

SECRETARY MCBRAYER: No, we have got a net profit of something like $1,000.

DR. H. B. HIATT: Mr. President, if I understand this matter correctly, it involves a change in the By-Laws to put this motion of Dr. Pepper's into effect.

PRESIDENT STEVENS: Yes.

DR. HIATT: I move you, sir, that you appoint a special committee to

investigate this thing and report back to the House of Delegates at the Wednesday meeting.

Dr. Hiatt: If you want a special committee, all right. However, the Finance Committee is satisfactory to me.

President Stevens: There is a motion already before the house, and this is a motion to refer?

Dr. Hiatt: Yes.

President Stevens: Is there any discussion?

Voice: I suggest that this Committee be authorized to return on Tuesday, tomorrow, and that will give them 24 hours.

President Stevens: There is no meeting of the House of Delegates tomorrow. This Committee can confer tomorrow and let us have a report early Wednesday morning, because this will have to lay over for 24 hours.

Dr. Hiatt: That was a motion that they are to report back at the Wednesday meeting.

President Stevens: All in favor of referring this to the Finance Committee for consideration to report back to the House of Delegates at the Wednesday meeting please say "aye"; opposed "no." The motion is carried. The question is referred to the Finance Committee for consideration and report to the House of Delegates Wednesday.

Secretary McBrayer: Mr. President, I would just like to say this so that we all can be thinking about it before our next meeting, and that is that the legislature is going to be in session before this House of Delegates meets again. If we carry on the things that the Chairman of the Legislative Committee suggested here, we are going to use all the money we have got and perhaps want more. However, it is absolutely up to you gentlemen to say whether we do or whether we do not. I just wanted to say that, and I thank you.

Dr. Winstead: You had a $1100 surplus this year with an increase in membership amounting to what, Dr. McBrayer?

President Stevens: Dr. McBrayer will be glad to give you that information.

Secretary McBrayer: The membership is just about the same—about 30 or 40 less, possibly.

President Stevens: Is there any further business to come before the House of Delegates?

If not, I would like to make an announcement with reference to the Committee on Nominations. Our By-Laws provide that the House of Delegates at its first session shall select a Committee on Nominations consisting of ten delegates, one from each of the ten Councillor districts, whose duty it shall be to nominate one person for each of the offices to be filled by election by the House of Delegates at the annual meeting.

In accordance with previous custom, I hereby direct the delegates from Councillor District No. 1 to meet together after the close of this meeting and select from their number one delegate to serve on this Nominating Committee. Delegates from Councillor District No. 2 are directed to hold a similar meeting and select one of their number as a member of the Nominating Committee. Delegates from each of the

other Councillor districts are directed to hold similar meetings and select for each Councillor district one member.

The Nominating Committee so selected should determine among themselves a definite time and place for meeting and complete their work in time to report their nominations to the House of Delegates at 7:30 o'clock Wednesday at which time the elections will take place. That is 7:30 P.M. Wednesday.

The Secretary will instruct the Nominating Committee as to the offices to be filled.

If the delegates from these different Councillor districts will meet now, the personnel of that Committee could be reported yet this evening.

. . . The ten districts then had their individual meetings, and the personnel of the Nominating Committee as reported to the Secretary by them is as follows:

First District—C. B. Williams, Elizabeth City.
Second District—K. P. B. Bonner, Morehead City.
Third District—John G. Murphy, Wilmington.
Fourth District—T. W. M. Long, Roanoke Rapids.
Fifth District—O. L. McFadyen, Fayetteville.
Sixth District—W. B. McCutcheon, Durham.
Seventh District—L. A. Crowell, Lincolnton.
Eighth District—H. B. Hiatt, High Point.
Ninth District—C. R. Hedrick, Lenoir.
Tenth District—G. W. Murphy, Asheville.

. . . The House of Delegates then adjourned at 11:45 P.M. . . .

WEDNESDAY EVENING SESSION

April 20, 1932

The second session of the House of Delegates of the Medical Society of the State of North Carolina convened in Lecture Room "C" of the Robert E. Lee Hotel, Winston-Salem, North Carolina at 7:40 P.M., Dr. M. L. Stevens, Asheville, President of the Society, presiding.

President Stevens: The meeting of the House of Delegates will please come to order.

I believe we have some committees to report.

. . . Secretary McBrayer then read the report of the Finance Committee appointed to consider the report of the Secretary-Treasurer, the minutes of the Executive Committee Meetings and the Secretary-Treasurer's Financial Report. . . .

To the House of Delegates:

Your Committee on the annual report of the Secretary-Treasurer, the minutes of the Executive Committee Meetings and the Secretary-Treasurer's Financial Report beg leave to submit the following:

First: That there be established in each County Society and District Society an active Legislative Committee to function locally and in conjunction with the Executive Committee and Legislative Committee of the Medical Society of the State of North Carolina, making reports to the State and Legislative Committees, etc. This, in your Committee's opinion, would keep the entire medical fraternity cognizant of the legislative activities and in position to act as a unified body at call.

Second: That we endorse the idea of looking into the qualifications more carefully than we have ever done before, the candidates for our next legislature.

Third: To see to it that the members of the legislative body give the medical men a voice in the power *now invested entirely in the Industrial Commission in fixing fees.*

Fourth: We suggest that the councillors in each District endeavor to secure as members of its County Medical Society those who are eligible from the 250 now non-members.

Fifth: We suggest further that the councillors call attention to the members of their district as to the importance of seeing that they are listed in the American Medical Association as fellows, who are members but not enrolled as fellows.

Sixth: We suggest again that the councillors endeavor to have appointed ex-officio appointees from each County Medical Society in the State as ex-officio members of the City or County Health Departments through whom all important questions should be brought to the local Society for discussion.

Seventh: Your committee thinks it unwise to lower membership dues.

Eighth: Your committee further thinks that any bills presented to the Legislature affecting the medical profession should first be printed in a prominent newspaper in the locality in which this legislation will effect, and should it concern the State at large it should be published in an outstanding paper of the State; this publication to run at least 10 days previous to the presenting of the bill.

Ninth: Your committee reporting its reaction to the World War Veterans Act to increase the number of beds in Veterans' Bureau Hospitals to 120,000 beds, beg leave to submit the following:

In 1913 the total Federal governmental expenditures amounted to approximately $725,000,000; in 1923 (ten years thereafter) $3,245,000,000; in 1932, estimated at $3,950,000,000.

From July 1, 1931, through January 26, 1932, the excess of expenditures over receipts was $1,481,000,000 (National City Bank of New York), in 1932, veterans' administration cost was $462,000,000; in 1932 (fourteen years after the World War), it had increased to $784,000,000.

David Lawrence made the statement that governmental cost for this year was $4,000,000,000, and that the veterans were receiving annually $1,000,000,000 and that the Navy and War administration received $1,000,000,000 or the entire tax income of the Federal government. In other words, we are running at a loss of approximately $2,000,000,000 per year.

With this statement of undeniable facts and the dire necessity of finding new sources to tap for taxes, or increase the present tax rate of our now over-burdened, almost bankrupt citizens, to meet the exigency of balancing the budget, it is a pagan thought to ask for more.

When the World War ended, the United States Government set about to, and did, amply provide for her soldiers who were injured or suffered any disability attributable to their service, plus a generous bonus. "In March 31, 1931, there were fifty-three Veterans' Hospitals

in operation having a standard bed capacity of 25,930" (H. H. Shoulders, M.D., Nashville, Tenn.). Last year Frank T. Hines, Veterans Administrator, made clear that no new hospitals were needed to take care of the veterans disabled by their war service (Washington *Post*). Secretary Wilbur expressed the belief that the government had built enough veterans hospitals.

The above facts staring you in the face, with the drastic decline in stock values, industrial and agricultural losses, real estate deflation; rentals below actual taxes; which amounts to confiscation of properties —it is high time,—yes, it is necessary and mandatory, that extravagance cease; and we beg of you to introduce a BILL Repealing the World War Veterans Act, known as Paragraph 202-10, as amended in 1926, saying in substance that all veterans will be admitted to veterans' hospitals, free of charge, *without* regards as to the nature or origin of their disability.

The bill has been introduced in Congress to increase the number of beds in veterans' hospitals to 120,000 is a hysterical absurdity of the expenditures of the taxpayers' money, an imposition upon the people, and demands prompt attention. It is a preferential gain to a special group of patriotic citizens at the expense of their country in distress.

Such a bill tends to pauperize our manhood, and discourages personal independence and destroys a foundation of thrift.

This bill, if put in effect, would bring about a discriminating tax, a class legislation for political power.

We, your Committee, believe that there is no place for such a bill.

We endorse the plan to provide adequate care for indigent and retarded school children in need of medical attention.

FINANCIAL REPORT

The Committee finds the Secretary-Treasurer's Financial Report to be accurate, complete and in balance.

We take this occasion to express our thanks and appreciation for the services rendered by members of the Executive Committee, Legislative Committee and to our very competent Secretary-Treasurer.

Respectfully submitted,

Carl V. Reynolds,
H. B. Ivey,
Wm. P. Holt.

President Stevens: You have heard the report. What shall be done with it?

Dr. V. M. Hicks (Raleigh): I move its adoption.

. . . The motion was seconded. . . .

Dr. P. P. McCain (Sanatorium): I understand that the Executive Committee has had under consideration the matter pertaining to the veterans, and I would like to ask Dr. Hicks to accept an amendment that it be adopted except that portion pertaining to the veterans, and that that be referred to the Executive Committee with power to act.

Dr. Hicks: I accept that amendment.

. . . Motion as amended adopted. . . .

Dr. A. B. Holmes presented report of Committee on President's Message and President's Address.

House Delegates of North Carolina Medical Society:

Your special committee appointed to study and consider your President's address to the House of Delegates and his paper to the General Session, beg leave to offer the following report:

We have gone into a special study of Dr. Stevens' address "The House of Delegates" and his paper before the General Session and we are of the opinion that this able address as studied by us in detail is well worthy of all recommendations made and we as your committee heartily endorse and recommend that the recommendations contained in this paper, be adopted by North Carolina Medical Society.

Respectfully submitted,

A. B. Holmes,
J. B. Greene,
R. B. Davis.

. . . On motion the report of the Committee was adopted. . . .

President Stevens: Are there other reports?

Secretary McBrayer: At the request of the secretary of the Nominating Committee I will read to you the report of that Committee.

The Nominating Committee made the following report which was adopted:

President-elect—Dr. I. H. Manning, Chapel Hill.
First Vice-President—Dr. J. R. McCracken, Waynesville.
Second Vice-President—Dr. W. G. Suiter, Weldon.

MEDICAL SOCIETY FOUNDATION

Dr. M. L. Stevens, Asheville (5 years).
Dr. L. B. McBrayer, Southern Pines (4 years).

COMMITTEE ON OBITUARIES

Dr. C. M. Van Poole, Salisbury, Chairman.
Dr. R. B. McKnight, Charlotte.
Dr. W. H. Smith, Goldsboro.

COMMITTEE ON LEGISLATION

Dr. B. J. Lawrence, Raleigh, Chairman.
Dr. T. W. M. Long, Roanoke Rapids.
Dr. J. T. Burrus, High Point.

MOORE COUNTY MEDICAL SOCIETY MEDAL

Dr. J. W. Dickie, Southern Pines, Chairman.
Dr. J. M. Parrott, Raleigh.
Dr. J. Q. Myers, Charlotte.

COMMITTEE TO CONFER WITH STATE NURSES ASSOCIATION

Dr. Karl B. Pace, Greenville, Chairman.
Dr. O. L. McFadyen, Fayetteville.

COMMITTEE ON PRINTING

Dr. L. B. McBrayer, Southern Pines, Chairman.
Dr. P. P. McCain, Sanatorium.
Dr. J. W. Dickie, Southern Pines.

COMMITTEE ON HOSPITALS

Dr. W. D. James, Hamlet, Chairman.
Dr. Moir S. Martin, Mt. Airy.
Dr. David T. Tayloe, Jr., Washington.
Dr. E. W. Phifer, Morganton.

COMMITTEE TO CONFER WITH LIKE COMMITTEE FROM STATE HOSPITAL ASSOCIATION

Dr. R. B. Davis, Greensboro, Chairman.
Dr. E. S. Bullock, Wilmington.
Dr. William Spicer, Goldsboro.

DELEGATES TO AMERICAN MEDICAL ASSOCIATION

Dr. M. L. Stevens, Asheville, re-elected 1933-34, inclusive.

Dr. John Q. Myers, Charlotte, alternate for Dr. J. K. Pepper, Winston-Salem, 1932-33.

Dr. H. A. Royster, Raleigh, alternate for Dr. T. W. M. Long, Roanoke Rapids, 1932-33.

DELEGATES TO VIRGINIA MEDICAL SOCIETY

Dr. S. A. Malloy, Yanceyville; Dr. S. G. Jett, Reidsville; Dr. Bahnson Weathers, Rosemary; Dr. F. G. Jarman, Roanoke Rapids; Dr. D. T. Tayloe, Jr., Washington; Dr. W. W. Sawyer, Elizabeth City; Dr. H. D. Walker, Elizabeth City.

DELEGATES TO SOUTH CAROLINA MEDICAL SOCIETY

Dr. J. LaB. Ward, Asheville; Dr. M. S. Broun, Asheville; Dr. W. F. Elliott, Lincolnton; Dr. L. N. Patrick, Gastonia; Dr. Yates W. Faison, Charlotte; Dr. James W. Gibbon, Charlotte; Dr. V. K. Hart, Charlotte.

Place of meeting: Raleigh.

Time: Third Tuesday in April, 1933—April 17th, 18th, 19th.

Chairman Committee on Arrangements: Dr. Verne S. Caviness, Raleigh.

Signed:

First District—C. B. Williams, Elizabeth City.
Second District—K. P. B. Bonner, Morehead City.
Third District—J. G. Murphy, Wilmington.
Fourth District—T. W. M. Long, Roanoke Rapids.
Fifth District—O. L. McFadyen, Fayetteville.
Sixth District—W. B. McCutcheon, Durham.
Seventh District—L. A. Crowell, Lincolnton.
Eighth District—H. B. Hiatt, High Point.
Ninth District—C. R. Hedrick, Lenoir.
Tenth District—G. W. Murphy, Asheville.

President Stevens: Gentlemen, you have heard the report of the Nominating Committee. Is it the desire of the House of Delegates to take an individual vote on each of the candidates for office that have been reported by the Committee or is it the desire to adopt the Committee's report as a whole?

Dr. McCain: I move it be adopted as a whole.

. . . The motion was seconded. . . .

President Stevens: It has been moved and seconded that the report of the Nominating Committee be adopted as a whole. Is there any discussion? If not, all in favor of adopting the Nominating Committee's report as a whole will please say "aye"; opposed "no." It is carried.

Is there anything further to come up?

Dr. V. M. Hicks (Raleigh): There has been some confusion as to the duties of Councillor in reference to the investigation of the cause and prevention of some of the malpractice suits that are brought. I think that the House of Delegates should clarify the duties of Councillor in relation to this particular matter.

I think the House of Delegates should specifically instruct the individual Councillors that it shall be their duty, when an action for malpractice is brought against a physician in his district, to investigate the action, and if he finds that a physician in that district is about to serve as a witness against a doctor in a malpractice suit or if he finds that a doctor has countenanced or has said things to people that have precipitated a suit for malpractice against a doctor, it shall be his duty to confer with said offending doctor and persuade him if possible to desist from such unwarranted conduct; failing in which he shall make a report of this to the Council assembled and that this doctor in question shall be required to present himself to the Council and answer such charges as may be preferred; and that the Council shall in that event exercise its function and duties in imposing the proper penalties if guilt is found or in exonerating the doctor, as they may find.

I feel that if this House of Delegates will take that position it will allow a certain freedom for the Councillor that most of them now do not feel they have in these matters.

For that reason, Mr. President, I make the motion that we take this position and instruct, through our Secretary, the Councillors on this specific duty.

President Stevens: Dr. Hicks, I am not sure that I fully understand your motion. Is the motion intended to lead up to a change in our By-Laws?

Dr. Hicks: Mr. President, I am not quite certain whether a change of By-Laws is necessary in this event. The By-Laws, as I understand it, recite that it becomes the duty of a Councillor to take such steps as are necessary in promoting peace and harmony in his district, and other things that are for the good of the order—

President Stevens (reading): "And to investigate all questions of an unethical nature brought before the House of Delegates," etc.

Dr. Hicks: I rather think the Constitution and By-Laws need not be altered to include this. My idea is that if Councillors will get this matter before them definitely then they can feel free to go ahead.

SECRETARY MCBRAYER: I second the resolution.

DR. J. F. ABEL (Waynesville): I am not sure that I am qualified to speak here. However, I recently had a personal experience that leads me to believe that the laity is very rapidly getting the idea in their minds that doctors just stand up for each other regardless.

I don't know if anybody has had that impression or heard that kind of talk, but in my community there is the feeling that it does not matter what a doctor is charged with that all the other doctors fly to his rescue regardless. We all know that is not true.

However, on this matter of the Councillor taking up a local thing between two Fellows, if it is a matter of ethics, the first move must come, as I understand the By-Laws, through the local organization. Any cognizance taken of anything of an unethical nature must start in the county society.

If it is not settled there, then the Councillor, as I understand the By-Laws, takes it up, and it comes along through the natural channels; but the first move on an ethical proposition must be in the county medical society, unless according to Dr. Hicks's motion, he would heal that break by stepping over the county society.

PRESIDENT STEVENS: Is there any further discussion?

. . . At the request of the President the reporter re-read the motion of Dr. Hicks. . . .

PRESIDENT STEVENS: You have heard the resolution re-read in order that you may know what is being presented. Is there any further discussion of this question?

DR. B. J. LAWRENCE (Raleigh): Mr. President, in view of the motion introduced, on account of the remarks of the President-Elect, and in addition the fact that there are so few here and that this matter is one of great importance with far-reaching effects, that somebody might say that there were not sufficient men present to pass on a matter of this gravity, I wonder if Dr. Hicks would accept as a substitute for his motion merely a resolution which would read not unlike this:

That it is the sense of the House of Delegates (this, I understand, every reputable physician knows to begin with; those of us who are most interested in organized medicine and in its welfare are more apt to be careful about our remarks and we would not appear against a doctor wilfully, and my resolution would merely remind them of something that they already know) that we request the Secretary to send a letter to each member of the North Carolina State Medical Society calling their attention to the increasing number of suits and to the fact that most suits are due to careless or thoughtless remarks by brother physicians, that we urge them as a House of Delegates assembled to be more careful in their remarks regarding physicians or the handling of cases previously treated.

That would not affect the Constitution, nobody could feel offended or aggrieved at it, and it probably would serve the purpose of the first step which Dr. Hicks is driving at.

PRESIDENT STEVENS: You move that as a substitute motion?

DR. LAWRENCE: Yes, I make that as a substitute motion.

President Stevens: That has not been seconded so the original resolution is before the House.

Dr. Hicks: Mr. President, I really have made this motion, offered this resolution, at the request of a Councillor who felt that he needed this sort of thing from the House of Delegates.

Now then the fact that the entire delegation is not here, it seems to me, should not enter into the action of this House of Delegates. Our duties are clear and when a matter comes before us, it does not make any difference whether there are two or 100 here, we should act on it. This matter is purely a matter that involves the checking up of the ethics in our Society.

No one, it seems, could object to that. It does not involve any change in the Constitution or By-Laws. It merely clearly defines the fact that if a doctor does this unethical thing he must answer this charge, and it should be that way. If the Councillors understand that, why then they can proceed.

I think that we ought to be proud of the fact if the lay people feel that we stand together on matters of ethics. Really, there is nothing radical in this resolution, there is nothing malicious in it. It is just a matter of seeing to it that our organization and its membership stands for the ethics already written in our code of rules.

President Stevens: Is there any further discussion on this resolution of Dr. Hicks? Are you ready for the question? All in favor of the resolution as presented by Dr. Hicks and seconded by the Secretary please say "aye"; those opposed "no." It is a small vote but I think the "ayes" have it.

Now is there any further business to be brought before the House of Delegates? If not, I will declare the House of Delegates adjourned, and will call to order immediately the general session of the Medical Society.

. . . Thereupon at eight o'clock the meeting of the House of Delegates was adjourned. . . .

PROGRAM
GENERAL SESSIONS, 1932

FIRST GENERAL SESSION

TUESDAY, APRIL 19th, 9:30 A.M.

LECTURE ROOM "A."

Miss Dorothy Siegal, Reporter.

Call to Order—Dr. R. L. Carlton, Chairman, Committee on Arrangements, Winston-Salem.

Invocation—Bishop J. K. Pfohl.

Presentation of the President, Dr. M. L. Stevens.

President's Address—Dr. M. L. Stevens, Asheville.

Presentation of President's Jewel by Dr. John B. Wright, Raleigh, President-elect.

Report of Committee on winner of Moore County Medical Society Medal for best paper presented at last meeting, and presentation of Medal:

Dr. W. C. Mudgett, Chairman; Dr. John Q. Myers, Dr. James M. Parrott.

Lest we forget. The semi-centennial discovery of the tubercle bacillus by Robert Koch. 1882.

Introduction of Fraternal Delegates: Dr. J. K. Burns, Gainesville, Ga.; Dr Frank Eskridge, Atlanta, Ga.

Announcements.

Guest Speaker: Dr. E. Starr Judd, Rochester, Minn., President American Medical Association. Subject: "The Physician and the Public."

Guest Speaker: Dr. Elmer H. Funk, Philadelphia, Penn. Subject: "The Clinical Aspects of Primary Carcinoma of the Lung."

Address—"Away with State Medicine—If not Who's at Fault." Dr. C. V. Reynolds, Asheville. (At request of State Board of Health.)

Address—"Hospitalization and Treatment of Veterans." Dr. A. B. Holmes, Chairman, Committee on Hospitalization of Veterans.

Address—"The Preservation of the Health of our Youth from the Dentist's Standpoint." J. A. McClung, D.D.S., Winston-Salem. From North Carolina Dental Society.

Discussion—E. A. Branch, D.D.S., Raleigh. Director, Division of Mouth Hygiene, State Board of Health.

SECOND GENERAL SESSION

TUESDAY, APRIL 19th, 8:00 P.M.

LECTURE ROOM "B."

Miss Dorothy Siegal, Reporter.

Memorial Services

Dr. C. M. VanPoole, Chairman, presiding. Dr. J. F. Abel, Dr. Wm. H. Smith. Report of Committee on Necrology.

NORTH CAROLINA DOCTORS WHO HAVE DIED DURING THE YEAR

*Dr. J. Clement Allison, Statesville and Pittsburgh; *Dr. R. Mal Andrews, Bostic.

Dr. H. H. Bown, Asheville; Dr. J. F. Brewer, Asheville; Dr. W. C. Brownson (Honorary Fellow), Asheville.

*Dr. Francis J. Clemenger, Asheville and New York City; Dr. B. Thaddeus Cox, Winterville; *Dr. Joseph A. Cooper, Bryson City.

*Dr. Charles W. Davis, Zebulon; *Dr. James M. Dunlap, Ansonville.

*Dr. Thompson Frazer, Asheville and Buffalo, N. Y.

Dr. Wm. A. Graham (Honorary Fellow), Charlotte; *Dr. S. A. Grier, Harrisburg.

Dr. F. E. Hartsell, Oakboro; Dr. J. A. Hartsell, Concord; Dr. Herman G. Heilig, Asheville; *Dr. Orro M. Henderson, Asheville, formerly of Detroit, Mich.; Dr. William T. Holt (Honorary Fellow), McLeansville.

Dr. John R. Irwin (Honorary Fellow), Charlotte.

*Dr. T. A. Kirkman, Siler City.

Dr. Virgil Leggett, Hobgood.

Dr. Peter McLean, Laurinburg.

Dr. A. A. Maynard, Harrell's Store; *Dr. Roscoe Mauser, Hickory; Dr. E. R. Michaux (Honorary Fellow), Greensboro; Dr. William F. Mitchell, Shelby; Dr. Edwin Gibson Moore (Honorary Fellow), Elm City; *Dr. Blythe Morris, State Hospital, Goldsboro; Dr. George B. Morris, Goldsboro.

Dr. Robert W. Palmer, Gulf; Dr. W. D. Pemberton (Honorary Fellow), Concord; *Dr. E. A. Pierce, Ocracoke; Dr. John A. Pinnix, Yanceyville.

*Dr. John S. Reid, Concord; Dr. Charles Roberson (Honorary Fellow), Greensboro; *Dr. Frank Roberts, Marshall.

Dr. F. Bobo Scruggs, Shelby; Dr. G. T. Sikes (Honorary Fellow), Creedmoor; *Dr. Ray Coman Sink, Winston-Salem and Binghampton, N. Y.; *Dr. Manly A. Siske, Pleasant Garden and Kings Park, N. Y.; Dr. L. C. Smith, Polkton; Dr. L. P. Sommers, New Castle; Dr. Ira J. Stoner, Durham.

Dr. H. P. P. Thompson, Highlands.

Dr. George S. Watkins, Oxford; Dr. L. D. Wharton (Honorary Fellow), Smithfield; Dr. J. W. White (Honorary Fellow), North Wilkesboro; *Dr. Horace N. Wells, Murphy.

*Dr. Lawrence Branch Young, Rolesville.

*Dr. D. B. Zollicoffer, Weldon; *Dr. C. C. Zimmerman, Durham.

Total, 51.

General Memorial Address:

Addresses on the Life of deceased Fellows.

* Not members Medical Society of the State of North Carolina.

THIRD GENERAL SESSION

WEDNESDAY, APRIL 20th, 11:45 A.M.

LECTURE ROOM "A."

Mr. Berry Horne, Reporter.

11:45 a.m.—Nomination members State Board of Medical Examiners—Total of seven to be elected.

Nominations for member State Board of Health to fill unexpired term of three years.

12:00 m.—Conjoint Session the Medical Society of the State of North Carolina and the State Board of Health. Dr. M. L. Stevens, President, Medical Society of the State of North Carolina, Presiding.

FOURTH GENERAL SESSION

WEDNESDAY, APRIL 20th, 2:00 P.M.

LECTURE ROOM "A."

Mr. Berry Horne, Reporter.

Balloting for the election of seven members of the State Board of Medical Examiners and one member of State Board of Health.

(The program will continue while tellers are counting the ballots.)

Address: "Trichiniasis," Dr. O. H. Perry Pepper, Philadelphia. (Guest Speaker.)

"Radiotherapeutic Abortion," Dr. J. P. Rousseau, Winston-Salem.

"Modern Trends in the Management of Tuberculosis," Dr. Paul H. Ringer, Asheville. From Section on Practice of Medicine.

"The Hand," Dr. J. S. Gaul, Charlotte. From Section on Surgery.

"A Few Fallacies in Gynecology," Dr. F. Webb Griffith, Asheville. From Section on Gynecology and Obstetrics.

"Serum Reactions," Dr. C. A. Shore, Director, State Laboratory of Hygiene, Raleigh. From Section on Public Health and Education.

"Eye Conditions of General Interest," Dr. F. C. Smith, Charlotte. Lantern Slides. From Section on Ophthalmology and OtoRhinoLaryngology.

"Diverticula of Duodenum," Dr. B. E. Rhudy, Greensboro.

"Report of a case of Paresis treated with therapeutic temperature produced by high frequency current," Dr. J. R. Alexander, Charlotte.

FIFTH GENERAL SESSION

WEDNESDAY, APRIL 20th, 8:00 P.M.

LECTURE ROOM "B."

Mr. Berry Horne, Reporter.

Report of Board of Medical Examiners.
Reading of any papers on program not heretofore read.
Unfinished Business.
Report from House of Delegates.
Installation of officers for succeeding year.
Adjourn sine die.

SECTION MEETINGS

SECTION ON SURGERY

TUESDAY, APRIL 19th, 2:00 P.M.

LECTURE ROOM "A."

Dr. Roy B. McKnight, Charlotte, *Chairman.*
Miss Dorothy Siegal, Reporter.

1. Robertson, Dr. J. F., Wilmington, Murchison, Dr. D. R., Wilmington—"Diabetes—From the Surgical Standpoint." Discussion, Dr. W. H. Sprunt, Jr., Winston-Salem.

2. Willis, Dr. B. C., Rocky Mount—"Perforating Wounds of the Abdomen Received from Rifle, Pistol and Shotgun Missiles, Reporting 63 Cases." Discussion, Dr. H. A. Royster, Raleigh.

3. Cooke, Dr. G. C., Winston-Salem—"Relation of Radiology to Surgery." Discussion, Dr. L. A. Crowell, Lincolnton.

4. Cobb, Dr. D. B., Goldsboro—"Vaginal Ureterolithotomy." Discussion, Dr. R. W. McKay, Charlotte.

5. McKnight, Dr. R. B., Charlotte (Chairman's Address)—"Surgical Standardization."

6. Brenizer, Dr. A. G., Charlotte—"The Importance of Recognition of the Patency of the Duodenum before all Operations on the Stomach." Discussion, Dr. M. H. Biggs, Rutherfordton.

7. Hart, Dr. Deryl, Durham—"Self Mutilation." Discussion, Dr. A. F. Mahoney, Monroe.

8. Moore, Dr. J. A., Asheville—"Studies in Electro-Surgery." Discussion, Dr. R. O. Lyday, Greensboro.

9. Allen, Dr. C. I., Wadesboro—"An Improved Splint for Treating Fractures of the Lower Extremity." Discussion, Dr. J. S. Gaul, Charlotte.

10. Judd, Dr. E. Starr, Rochester, Minn., President, American Medical Association—"Surgery of the Biliary Tract."

11. Gaul, Dr. J. S., Charlotte—"The Hand."

Before Fourth General Session, Wednesday, April 20th.

SECTION ON PEDIATRICS

TUESDAY, APRIL 19th, 2:00 P.M.

LECTURE ROOM "B."

Dr. Sam F. Ravenel, Greensboro, *Chairman.*

Mr. A. F. Le Meur, Reporter.

1. Ravenel, Dr. Samuel F., Greensboro (Chairman's Address)—"A Consideration of Purpura."

2. Geddie, Dr. Kenneth B., High Point—"Serum Reactions." Discussion, Dr. T. M. Watson, Greenville.

3. Shands, Dr. A. R., Jr., Durham—"The Body Mechanics of the Child." Discussion, Dr. W. F. Cole, Greensboro.

4. Kutscher, Dr. G. W., Swannanoa—"Intracranial Hemorrhage in the Newly born, Symptoms and Treatment." Discussion, Dr. J. Buren Sidbury, Wilmington.

5. McBryde, Dr. A. M., Durham—"The Treatment of Epilepsy." Discussion, Dr. Arthur London, Jr., Durham.

6. Knox, Dr. J. C., Goldsboro—"Vomiting, as the Chief Complaint in Infancy and Childhood." Discussion, Dr. T. M. Watson, Greenville.

7. Smith, Dr. Frank, Charlotte—"Eye Lesions in Childhood." Discussion, Dr. Charles R. Bugg, Raleigh.

8. Street, Dr. C. A., Winston-Salem—"Diabetic Gangrene of the Nasal Septum." Report of a case.

SECTION ON OPHTHALMOLOGY AND OTORHINOLARYNGOLOGY

TUESDAY, APRIL 19th, 2:00 P.M.

LECTURE ROOM "C."

Dr. V. K. Hart, Charlotte, *Chairman.*
Dr. Vance P. Peery, Kinston, Secretary.
Mr. Berry Horne, Reporter.

1. Hart, Dr. V. K., Charlotte (Chairman's Address)—"Endoscopy and Pathology of the Respiratory Tract." Lantern slides.
2. Eagleton, Dr. Wells P., Newark, N. J. (Invited Guest)—"Meningitis of Nasal Origin."
3. Hicks, Dr. V. M., Raleigh—"Legal Aspects of Ophthalmology."
4. Bizzell, Dr. M. E., Goldsboro—"Allergic Conditions in RhinoLaryngology." Discussion, Dr. Shehane Taylor, Greensboro.
5. Swan, Dr. C. C., Asheville—"Routine Diagnostic Procedure in OtoLaryngology."
6. Coombs, Dr. Fielding, Winston-Salem—"The Radical Frontal Operation."
7. Eagle, Dr. W. W., Durham—"Laryngeal Diphtheria.
8. Asbill, Dr. David S., Statesville—"Acute Endogenous—Endophthalmitis."
9. Smith, Dr. F. C., Charlotte—"Eye conditions of General Interest." Lantern slides.

Before Fourth General Session, Wednesday, April 20th.

SECTION ON PRACTICE OF MEDICINE

WEDNESDAY, APRIL 20th, 8:30 A.M.

LECTURE ROOM "A."

Dr. Wm. H. Smith, Goldsboro, *Chairman.*
Mr. Berry Horne, Reporter.

1. Bittinger, Dr. S. M., Sanatorium—"A Brief Discussion, with Presentation of several types of Disease of the Lymphatic Glands Observed at the State Sanatorium." Discussion, Dr. W. B. Kinlaw, Rocky Mount.
2. Craig, Dr. S. D., Winston-Salem—"Iodized Table Salt, its Common Usage and Results."
3. Ivey, Dr. H. B., Goldsboro—"Some Aspects of Cholecystography." Lantern slides. Discussion, Dr. D. B. Cobb, Goldsboro.
4. Ervin, Dr. C. E., Danville, Pa., and Kimmel, Dr. Arden (Guest Speaker)—"Maintenance of Protein Balance in Nephritis." Discussion, Dr. Wm deB. MacNider, Chapel Hill.
5. Manning, Dr. I. H., Chapel Hill—"The Contributions of Biological Chemistry to Clinical Medicine." Discussion, Dr. Claiborne Smith, Rocky Mount, Dr. W. M. Coppridge, Durham.
6. Rainey, Dr. W. T., Fayetteville—"Hypothyroidism." Discussion, Dr. A. A. Barron, Charlotte.
7. Ringer, Dr. Paul H., Asheville—"Modern Trends in the Management of Tuberculosis."

Before Fourth General Session, Wednesday, April 20th.

SECTION ON GYNECOLOGY AND OBSTETRICS

WEDNESDAY, APRIL 20th, 8:30 A.M.

Lecture Room "B."

Dr. John Watkins, Asheville, *Chairman.*
Miss Dorothy Siegal, Reporter.

1. Johnson, Dr. George, Wilmington—"Kraurosis Vulvae."
2. Hamblen, Dr. E. C., Durham—"The Clinical Importance of the Female Sex Hormones."
3. Ross, Dr. R. A., Durham—"The Mechanism and Management of the Posterior Occiput Presentation." (Demonstrated with Phantom Pelvis.)
4. Ferguson, Dr. Robert Thrift, Charlotte—"Etiology, Pathology and Treatment of Uterine Hemorrhage."
5. Griffith, Dr. F. Webb, Asheville—"A Few Fallacies in Gynecology."

Before Fourth General Session, Wednesday, April 20th.

SECTION ON PUBLIC HEALTH AND EDUCATION

WEDNESDAY, APRIL 20th, 8:30 A.M.

Lecture Room "C."

Dr. C. C. Hudson, Greensboro, *Chairman.*
Mr. A. F. Le Meur, Reporter.

1. McBrayer, Dr. L. B., Southern Pines—"Tuberculosis in Early Adult Life and Its Prevention." Lantern slides.
2. Smith, Dr. David T., Durham—"The Relation of Diet to Diseases." Lantern slides.
3. Perry, Dr. R. E., Greensboro—"Anthrax—Report of a Human Case."
4. Ziegler, Dr. M. P., Surgeon USPHS, Washington, D. C.—"The Essentials of a Venereal Disease Program."
5. Yoder, Dr. P. A., Winston-Salem—"A County Anti-tuberculosis Program." Discussion, Dr. John Donnelly, Huntersville.
6. Shore, Dr. C. A., Raleigh—"Serum Reactions."

Before Fourth General Session, Wednesday, April 20th.

CONJOINT SESSION OF THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA AND THE STATE BOARD OF HEALTH

WEDNESDAY, APRIL 20th, 12:00 M.

Lecture Room "A."

Mr. Berry Horne, Reporter.

Members of the North Carolina State Board of Health

J. T. Burrus, M.D., President, High Point.
Carl V. Reynolds, M.D., Vice-President, Asheville.
L. B. Evans, M.D., Windsor.
S. D. Craig, M.D., Winston-Salem.
J. N. Johnson, D.D.S., Goldsboro.
J. A. Goode, Ph.G., Asheville.
H. L. Large, M.D., Rocky Mount.
H. G. Baity, D.C.E., Chapel Hill.
Grady G. Dixon, M.D., Ayden.

Executive Staff

James M. Parrott, M.D., Secretary-Treasurer and State Health Officer.
C. A. Shore, M.D., Director, Division of Laboratories.
G. M. Cooper, M.D., Director, Division of Preventive Medicine.
John H. Hamilton, M.D., Director, Division of Epidemiology and County Health Activities.
E. A. Branch, D.D.S., Director, Division of Dentistry.
W. H. Booker, C.E., Director, Division of Sanitary Engineering.

Order of Business

Dr. M. L. Stevens, Asheville, President, Medical Society of the State of North Carolina, Presiding.
Address of the President, Dr. J. T. Burrus, High Point.
Annual Report of Secretary-Treasurer.
Discussions.
New Business.
Adjournment.

WOMEN'S AUXILIARY TO THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

Officers

President—Mrs. R. S. McGeachy, Greenville.
President-Elect—Mrs. G. C. Beard, Atkinson.
First Vice-President—Mrs. W. B. Murphy, Snow Hill.
Second Vice-President—Mrs. J. F. Robertson, Wilmington.
Third Vice-President—Mrs. Foy Roberson, Durham.
Treasurer—Mrs. A. B. Holmes, Fairmont.
Recording Secretary—Mrs. P. P. McCain, Sanatorium.
Corresponding Secretary—Mrs. K. B. Pace, Greenville.

Councillors

First District—
Second District—Mrs. W. I. Wooten, Greenville.
Third District—Mrs. J. C. Wessell, Wilmington.
Fourth District—Mrs. Malcolm E. Bizzell, Goldsboro.
Fifth District—Mrs. O. L. McFadyen, Fayetteville.
Sixth District—Mrs. G. H. Macon, Warrenton.
Seventh District—
Eighth District—Mrs. A. D. Ownbey, Greensboro.
Ninth District—Mrs. B. W. McKenzie, Salisbury.
Tenth District—Mrs. A. G. T. Hipps, Asheville.

Tuesday, April 19th

11:00 a.m. Meeting Executive Board.
2:00 p.m. Annual Meeting.

PROGRAM

Mrs. R. S. McGeachy, *President,* Presiding.

Invocation—Rev. R. E. Gribbin of the Protestant Episcopal Church, Winston-Salem.

Address of Welcome—Mrs. E. A. Lockett, Winston-Salem.
Response to Welcome—Mrs. J. B. Sidbury, Wilmington.
Minutes—Mrs. P. P. McCain, Sanatorium, Recording Secretary.
Roll Call—Mrs. P. P. McCain, Sanatorium, Recording Secretary.
Address of President—Mrs. R. S. McGeachy, Greenville.
Report of Officers.
Report of Councillors.
Report of Chairmen of Committees.
Report of Delegates to Auxiliary American Medical Association and Southern Medical Association.
Greetings—President of Medical Society of the State of North Carolina—Dr. M. L. Stevens, Asheville.
Address—Dr. E. Starr Judd, President, American Medical Association.
Introduction of President-Elect Women's Auxiliary to American Medical Association, Mrs. Walter Jackson Freeman, Philadelphia, Pa.
Address—Mrs. Walter Jackson Freeman.
Election of Officers.
Installation of Officers.
Awarding of Prizes.
Adjournment.
4:00-6:00 p.m.—Tea at City Memorial Hospital. Hostess: Mrs. Whittington.
9:00 p.m.—Dance.

Wednesday, April 20th

11:00 a.m. Bridge—Country Club.
1:00 p.m. Luncheon—Country Club.
2:00 p.m. Tour of the city—Visits to private gardens.

Committee on Arrangements

Mrs. A. deT. Valk, *Chairman,* Mrs. T. W. Davis, Mrs. R. W. Spicer, Mrs. E. A. Lockett, Mrs. E. P. Gray, Mrs. W. O. Spencer, Mrs. S. W. Hurdle, Mrs. J. P. Rousseau.

ALUMNI DINNERS

Tuesday, April 19th

1:00 p.m. Medical School of the University of North Carolina.
6:30 p.m. Jefferson Medical College.
6:30 p.m. North Carolina Medical College.
7:30 p.m. North Carolina Radiological Society. Lecture Room "C."

GENERAL SESSIONS

FIRST GENERAL SESSION

TUESDAY MORNING, APRIL 19, 1932

The First General Session of the Medical Society of the State of North Carolina convened in Lecture Room "A" of the Robert E. Lee Hotel, Winston-Salem, North Carolina, at nine-thirty-five o'clock.

Dr. R. L. Carlton, Chairman Committee of Arrangements: The Seventy-ninth Annual Session of the Medical Society of the State of North Carolina will please come to order.

You will arise and we will be led in prayer by Bishop J. K. Pfohl of Winston-Salem.

Bishop J. K. Pfohl: Our God and Father in Heaven, ere we proceed further with the experiences of this day we pause in order that we may acknowledge Thee and Thy goodness to us. Thou art He in whom we live and move and have our being. Thou art the author of life, and Thou art providing for us daily and abundantly out of Thy great storehouse of provisions.

We pray for Thy presence, Thy guidance, Thy direction for these men as they meet together for the holding of this convention. We would ask Thee, Lord, that Thou wouldst encourage them in this important service in which they are engaged. Give them high ideals of their profession. Help them to realize, Lord, how Thou dost Thyself labor with them in the healing of the body, in the bringing of relief to those who are in the midst of suffering.

May they be able to magnify their calling while they are meeting together here in convention. May they receive inspiration for further service, and return again to their homes and to their places of work, encouraged, Lord, for that which lies before them.

Give them, too, to realize that in Christ they find the ideal for all that service has to do with the betterment of the world and the uplift of mankind. May they have good fellowship here with one another. May their pleasures, Lord, be such as Thou canst give Thy full approval, and in their return again to their homes do Thou protect them and may they make Thy journeys in safety.

Teach us all, dear Lord, how anxious and willing Thou art to share with us in that work in which we are engaged, and may we ever cherish Thy promise that if we commit our way to the Lord he will direct our paths. Give Thy blessing to us, Lord, in full measure we pray in the name of Jesus. Amen.

Dr. Carlton: It is now a privilege and a very great pleasure to present to you your President, Dr. M. L. Stevens of Asheville. (Applause)

PRESIDENT'S ADDRESS

Dr. M. L. Stevens, Asheville

Retrospect and Prospect

Your President is expected to address you at this time on some subject that concerns our profession as a whole. The changes that have taken place in the practice of medicine in the past few decades and those that may take place in it in the near future constitute such a subject, and the consideration of it brings up some problems to which we should give thought.

In discussing this subject I will ask you to join with me in looking backward and then forward. We will begin the retrospect with medical conditions present when I began the practice of medicine, 1891.

At that time a doctor was graduated after three or even two years of study. The schools gave a smattering of bacteriology, but few of them taught it practically. Most graduates had never seen an appendix operation because it was then seldom done. There were but four hospitals in the State and no graduate nurses, and but few training schools for nurses in the United States.

Malaria was thought to be caused by miasmatic air from the swamps *mal aria*—and throughout this Piedmont Section and the coastal lands to the east and south of us, was so prevalent as to be met with in the majority of the rural homes every year.

That typhoid was prevalent is evidenced by the fact that in all the wars in which our country had been engaged up to that time, and in the Spanish American War later, the mortality from this disease alone was greater than that from wounds.

Of the dreaded disease diphtheria, the cause was known, but there was no specific treatment for it and no known means of immunizing against it.

The tubercle bacillus had been discovered, but in most of the counties of the State there was no doctor who owned a microscope or who was prepared to make a laboratory diagnosis of tuberculosis. Many of us had been taught that in active tuberculosis the duties of the physician were summed up in keeping the patient comfortable while he lived and signing a death certificate.

Roentgen had not yet discovered the X-ray.

Outbreaks of yellow fever in the cities along the Gulf Coast were not infrequent and the work of Reed and Carrol demonstrating its mode of transmission had not yet been done.

The organism causing syphilis was unknown. The Wassermann test for its diagnosis had not been worked out, and Ehrlich's arsphenamine treatment had not been discovered.

Hookworm infestation, for years unrecognized, was impairing the health and sapping the strength of children and adults, especially in the rural districts, and was so prevalent that when finally recognized over a third of a million (393,566) cases are known to have been treated in the three years 1910-12.

Pellagra was thought to be a European disease and was unrecognized in America.

Because of the absence of hospitals most surgical operations were necessarily done at the home of the patient. Antiseptics were freely used but asepsis had not come into general practice.

With the exception of a very few eye, ear, nose and throat specialists, practically all of the physicians belonged to that too rapidly disappearing class known as general practitioners, who were expected to treat all ailments from childbirth to senility and who, though unfamiliar with many of the things the graduate of today is expected to know, knew their patients, their habits, their tendencies and their physical and mental reactions to disease as the specialist who limits his work cannot know, and to his patients was not only their doctor but their confessor, their counsellor and trusted friend.

Each year has been a year of change and progress. In the four decades that I have been a member of this Society the practice of medicine has progressed as much as in the four centuries before.

Malaria is no longer a common disease.

For diphtheria we have a specific remedy and in addition a sure preventive.

Yellow fever has been conquered.

Typhoid is now a rare disease and can be prevented.

Tuberculosis is no longer incurable.

The cause of syphilis is known and the disease is now curable.

Hookworm is controlled.

The cause of pellagra has been discovered and the means of prevention and treatment are known.

Hospital facilities are everywhere available.

The advancement in surgical technique and in anesthesia has been so marvelous that it is now possible for the patient to look on as an interested spectator while a major operation is painlessly performed on his own body.

The ductless glands have given up their secrets.

The microscope, the chemical laboratory, the X-ray, the cardiograph, the metabolism and blood pressure apparatus, and other scientific instruments and procedures reveal functional and organic changes which formerly could not be detected.

Health agencies of the state and the municipalities have fostered and promoted ways and means of preventing disease in the homes, and in the schools the health handicaps to education and useful life are removed.

Years have been added to the average span of human life.

There have been discoveries and advancements in all branches of science and industry, but the advancement in the science and art of medicine has not only kept even with that in other lines but in many instances has made advance in industry possible.

These and many other changes that have taken place within the years of my practice sufficiently demonstrate that medicine is not a fixed science but an ever changing one.

Having hastily scanned some of the things that are behind us let us now look forward, not into the haze of the distant future which our minds eye cannot penetrate, but into that which is near at hand. Is the

way clear for the uninterrupted continuation of medical progress? Can we see looming up any obstacles that may impede it? Are there problems demanding solution?

The phenomenal progress that has been made has so multiplied the branches of medical knowledge that one mind cannot master all of them. This has resulted in specialism—in group practice—in diagnostic clinics —in a multiplicity of diagnostic procedures—in too great a dependence on the part of the modern physician upon the laboratory for diagnosis, even in cases in which an intelligent history and the exercise of his five senses should lead him to a correct diagnosis without resort to the laboratory—in general knowledge on the part of the layman of many of these diagnostic tests and the desire when his health is concerned that no helpful measure be omitted—in his being subjected in some cases to an unnecessary number of expensive diagnostic procedures—in a number of factors, among which the physicians fees are given undue prominence, increasing the cost of sickness beyond the ability of the family of moderate means to pay—to a strong current of public opinion fostered by political expedience which if not stemmed will bear us on to socialized or state medicine.

This is an obstacle that threatens our progress and must be surmounted. The problems connected with it may not be left to solve themselves. Our profession with its record of achievement has a valid claim for permission to continue its progress unhampered by misguided lay opinion, lay organizations and politically created and controlled governmental bureaus. An exaggerated sense of ethics must not keep us from considering our own interests so long as they do not conflict with the best health interest of the public or from using the political influence which, collectively, we are capable of exerting to prevent lay or governmental assumption of responsibility for the treatment of the sick, which would be a calamity for both the public and our profession.

The Committee on Public Relations of this and of other societies should inaugurate through the public press and other agencies an educational campaign for the purpose of acquainting the public with what the medical profession has accomplished working under conditions that encourage every member to put forth at all times his best efforts, and with the handicap to further progress that would result if excellence were not properly rewarded by greater prestige and adequate remuneration; with present day conditions in countries where socialized medicine is practiced, as in Germany where ninety-five per cent of the physicians work under government created bureaus under which all physicians regardless of skill receive the same fees; with the duty of the state to confine its health activities to the prevention of disease and not to enter the field of treatment except for the indigent; with the fact that medical care is worth all that is paid for it and that the higher cost of sickness is due to other factors and not to overcharge for medical service; with the need of better public appreciation for the services of the family physician and that it is only in exceptional cases that a specialist is necessary and that unnecessary medical fees are avoided by the patients who go first to him and let him refer them to a specialist if necessary.

The Committee on Legislation has been alert to all proposed legislation affecting adversely the interest of the public or the best interest of our profession, and has coöperated with the Committee on Legislation of the American Medical Association in opposing at every step "lay dictation of the practice of medicine, and the encroachment of the United States Government into the domain of medicine in fields other than prevention of disease." The work of these committees is not ended and to be successful in keeping the specter of socialized medicine, which is staring us in the face, from becoming a reality they will need the loyal support of every member of our profession. And that we may support them more intelligently I urge that every one acquaint himself with the changes that are rapidly taking place in our Federal Government; that it has departed from the old and successful American policy and creed of individualism and self-help and leaving to the states the regulation of their own affairs; that what we thought of as a democracy has become in reality a political autocracy that under the cloak of benevolent paternalism has created commissions and bureaus for the regulation of all enterprises and effort, each commission providing salary and sustenance to politicians at an expense to the people far beyond its worth to them; that these bureaus have increased ten fold since the beginning of the century; that there is an increasing trend toward federalized medicine and that no class would suffer more from bureaucratic regulation than physicians.

Another problem bearing on this matter is that of meeting the urgent need on the part of the public for able general practitioners, family physicians. For years the law of supply and demand in the distribution of doctors in the different branches of practice has not been operative. The young graduates have gone directly into specialties, overcrowding them while the thinning ranks of the family physician have not been refilled. Diagnostic clinics and group practice cannot satisfactorily take his place. They neither lessen the cost of medical service nor satisfy the patient who is "passed from one to another of the group, no one of whom he regards as his particular confidant." Many ailments that he would discuss frankly with a trusted family physician he hesitates to discuss with a group. Contract practice, industrial practice and other changes in the nature of medical practice proposed or brought about in response to an attempt to decrease the cost of medical care likewise cannot satisfactorily take his place because they, too, lessen the personal relationship between physician and patient. It is but natural for the worker to feel his responsibility to the source of his income. It is safer for the patient if the physician is responsible primarily to him and any plan that lessens this responsibility to the patient or that denies the physician the reward of individual effort or superior ability is detrimental to the welfare of both. The family physician is necessary and should be brought back.

To meet this need a special obligation rests on each of us to lose no opportunity to impress on the students of medicine and on the recent graduates the opportunities which this field of work offers. It is now an uncrowded field in which the objections that obtained to general practice in former days no longer hold good. Trained as the doctor now

is in the use of modern diagnostic methods he will find that nine-tenths of the ailments that he is called upon to treat do not need to be sent to the specialist, thereby helping to solve the problem of the cost of sickness and his own financial problems as well. The telephone, the automobile and good roads make patients, even in the country, easily accessible. The establishment of county hospitals permits hospital treatment under his own care. And diagnostic laboratories are within reach of all parts of the State. The financial returns from general practice are as great as from most of the specialties and the opportunity for helpful service is much greater. Moreover, should he later decide to limit his work to a specialty he will have developed a groundwork that will better qualify him in his chosen field, and will have accumulated capital sufficient to tide him over the lean years of establishing himself.

In what has been said I have endeavored to set before you two facts: That the medical profession has earned and is entitled to the right or privilege of continuing its work so necessary for humanity unhampered by lay, corporate or political agencies, and; that this justly earned privilege may be denied it if conditions which threaten this right are not altered, and problems connected therewith are not satisfactorily solved.

To these I would add another fact which must not be overlooked in considering the ones mentioned. Rights or privileges entail obligations or duties, and it is primarily the duty of the medical profession to see to it that the facilities for caring for the sick and preventing disease meet the requirements of present day conditions. If the profession does not meet these requirements then soon or late laymen and legislators will make attempts through business organizations and socialized medicine to improve a system which causes complaint and criticism.

President-Elect Wright, assuming the chair: Gentlemen, the President's Message will be referred to the Committee appointed by the House of Delegates to pass on the President's Message.

PRESENTATION OF PAST PRESIDENT'S JEWEL

Dr. Jno. B. Wright, President-Elect

Dr. Stevens, on behalf of the North Carolina Medical Society, it is my privilege to be permitted to present to you a jewel. As a firm believer in organized medicine, one who is proud of the achievements in the past that have been accomplished through the organization and the unification of the medical profession not only in this state but in these United States, it is with peculiar pride that, representing the profession of our great state, that I am permitted to present to you this emblem which is made of gold, the metal of purity, which represents the service that you have rendered the profession, and of which the medical profession of North Carolina is duly proud. It is with a great deal of pleasure that I present this jewel to you for the Medical Society of the State of North Carolina with their esteem, pride and honor and love. (Applause)

President Stevens: Mr. President, it is with pride and humility that I accept this jewel, pride in having been permitted to serve this Society, humility because unable to serve it better. I thank you and through you the Medical Society. (Applause)

President Stevens: We will now have the report of the Committee on Award of Moore County Medical Society Medal, Dr. Myers representing the Committee of Award.

Dr. John Q. Myers: Mr. President, the Committee serving the State Medical Society on the Moore County Foundation have served you since its organization. There has been no change in the personnel of the Committee. One of us has been here at each meeting. Our Chairman is absent today for some reason, probably he will be here later.

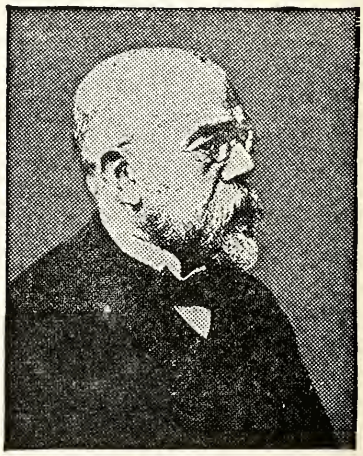
However, we have served the purpose for which the Foundation was established to the best of our ability and, having gone into the papers carefully, each man making his own choice of the best paper and voting secretly, separately and apart to our Secretary, who in turn announces the winner.

If Dr. F. C. Smith, Charlotte, is present, I would like for him to come forward. I think that Dr. Smith is not present. Therefore it is impossible to present this handsome emblem which the Moore County Society offers for the man presenting the best paper at each annual meeting. I am sorry I cannot deliver it to him. Dr. Myers was instructed by the President to deliver in person the medal to Dr. Smith. (Applause)

President Stevens: We are now privileged to hear a brief address by Dr. William H. Welch of Johns Hopkins. This is going to come to you over the phonograph.

Secretary McBrayer: This is an address on Robert Koch by Dr. William H. Welch, as the President has announced, in commemoration of the discovery of the tubercle bacillus by him fifty years ago. You will be able to recognize his voice. I imagine that 90 per cent of those in the room are familiar with the voice of Dr. Welch.

Robert Koch, a German country doctor, startled the world fifty years ago with absolute proof that tuberculosis is caused by tiny germs so small that thousands can ride on a speck of dust. And after some of the most celebrated scientists of the world had sought unsuccessfully to find the germ of tuberculosis—and many had denied the disease could be spread by a germ—he devised methods whereby it could be cultivated and studied through a microscope.



Robert Koch, the German Doctor Who Discovered the Tubercle Bacillus

It was known at that time that many varieties of infinitesimal living organisms had their abode in the body of man. But that some of them caused disease, while others helped man to live, was largely a matter of conjecture. For the first time, he showed the whole scientific world how to sep-

arate one of these tiny mites from others not of the same family, and how to grow them in incubators. He proved that certain rod-like creatures only one eight-thousands of an inch long caused tuberculosis.

When he had this germ in solitary confinement and gave it food it reproduced millions more—all exactly the same kind. And—incontestable evidence—when these were injected into the bodies of healthy animals, tuberculosis always resulted.

Without Koch's discovery, announced March 24, 1882, mankind would be without a sure footing in its battle against the unseen enemy. Koch made it possible to test sputum to learn if a person had tuberculosis; he proved that each case must come from another case, that tuberculosis doesn't just happen.

Today, fifty years after Koch's discovery, tuberculosis associations from coast to coast are engaged in a campaign to find the unknown case which has infected the known case; to teach the sick the simple rules of hygiene which prevent infection in others, as well as to help the patients themselves get well.

President Stevens: I would like to inquire whether the fraternal delegates from the Georgia State Medical Association are in the audience, and if they are will they please arise.

. . . The Georgia delegates were not present. . . .

President Stevens: Are there fraternal delegates here from the South Carolina State Medical Society? If so, will they please rise? Fraternal delegates from the Virginia Medical Society; fraternal delegates from the State Dental Society. (Applause)

. . . Two fraternal delegates from the State Dental Society were present. . . .

President Stevens: We gladly extend to the fraternal delegates from the State Dental Society the privilege of the floor. We assure them that we are honored by their presence, and we invite them to take part in any of the discussions.

Now I will ask Dr. McKnight of Charlotte to introduce our next speaker. Before he does that, however, the Secretary has some announcements to make.

Secretary McBrayer: The President requests me to announce that the following are the appointments of the Advisory Committee to the Women's Auxiliary. This is one of the highest compliments that is usually paid to a member of our Society. They are as follows: Dr. W. T. Rainey, Fayetteville; Dr. Alonzo Myers, Charlotte; Dr. J. B. Sidbury, Wilmington.

I have here a telegram from Dr. H. B. Weaver of Asheville, a past-president of this Association, and which I will read to you. I was trying to remember if he were not the oldest past-president living, but I believe that Dr. Baker preceded him a few years as President, though Dr. Baker doesn't look like it. (Laughter) Anyway this is the telegram which I think you will all appreciate:

"Members of the Medical Society of the State of North Carolina. Brethren: Only illness of two members of my family and myself prevent my presence with you. Forty long years many of us have labored to keep the high standard of medical education at the present high level.

I pray you to keep our principles and ethics sacred and inviolate. My heart is with you.

"(Signed) H. B. WEAVER."

(Applause)

If there is no objection, the Secretary will try to make a suitable reply to this telegram.

There are several of our Fellows who are ill—Dr. Scott at Sanford, Dr. Sloan at Charlotte, and perhaps two or three others. If any Fellow of the Society knows of a doctor who is ill if he will report to me we will be glad to at least write a letter of sympathy and affection.

DR. CARLTON: Will you include the name of Dr. S. D. Craig of Winston-Salem in that list?

. . . Other names suggested were Dr. C. E. Reitzel of High Point, Dr. Thomas E. Anderson of Statesville, Dr. R. P. Sykes of Asheville, Dr. E. L. Cox of Jacksonville, Dr. C. P. Ambler of Asheville. . . .

SECRETARY MCBRAYER: I thank you ever so much.

I want to call attention of those present, for fear that you haven't read your program, to the fact that (the sectional meetings will be held as usual this afternoon at two o'clock) in the morning instead of a general session as we usually have, the section meetings will begin at 8:30. I didn't say 10:30—don't misunderstand me—but 8:30 in the morning.

It is necessary to begin at 8:30. That is pretty early for those who stay up all night, but anyway 8:30 is the hour and it is necessary to begin then in order that you may adjourn at eleven forty-five o'clock in order to come into this room and take part in nominating a large percentage of our Fellows for membership on the State Board of Medical Examiners which we are to elect at that time. (Laughter)

I just want to call your attention to that because I think that will bring you in here at the hour promptly. That is going to begin at 11:45 whether you are here or not. So if you are going to nominate your man you had better be here. The sections begin at 8:30—three sections in the morning at 8:30.

In order to expedite the matter and have the business take place in an orderly way, when the nominations are made at 11:45, the ballot will not be had until two o'clock. In the meantime, the ballots will be printed, because on one occasion I happened to observe that it took the tellers pretty nearly all the afternoon to count the ballots the first time, and then they weren't very well satisfied about it because they couldn't read some of the names. Then at two o'clock we will assemble again and the ballots will be taken up. So you nominate at 11:45 and you vote at two.

I didn't want anybody to be left out. That is all in the program here, but I was afraid some of you couldn't read, so I wanted to make the announcement. I thank you, Mr. President.

PRESIDENT STEVENS: I now recognize Dr. McKnight.

DR. R. B. MCKNIGHT (Charlotte): Mr. President, Members of the Medical Society of the State of North Carolina: It is indeed a great privilege and honor to be requested to introduce our distinguished guest speaker, a man who through his heritage and through the conduct of his daily life and through his high qualities of character is a real gentleman;

a man who through his scientific researches, particularly recently, and his studies in biliary physiology, and through his voluminous and intelligent writings is an eminent scholar; a man who through his uncanny technical skill, through his diagnostic acumen and through his vast volume of work is probably the master surgeon of our country; a man who has been honored by the highest position organized medicine can give, that of the presidency of the American Medical Association. I take great pleasure in presenting to you Dr. E. Starr Judd of Rochester, Minnesota.

. . . The members arose and applauded. . . .

Dr. E. Starr Judd: Mr. President, Members of the North Carolina State Medical Society: May I take just a moment to congratulate you and your President upon his excellent address this morning? Many of the points that he brought out are the points that I particularly want to emphasize in what I have to say to you, particularly in relation to the importance of the family physician as the actual body of our plan of the practice of medicine in this country.

THE PHYSICIAN AND THE PUBLIC

E. Starr Judd, M.D., Rochester, Minnesota
President American Medical Association

In the past century, momentous changes have occurred in every business or profession that has kept step with the times. In no field has the advancement of knowledge been greater than that which concerns the cause, prevention and treatment of disease.

The profession itself has demanded higher and higher standards of medical education and practice. Our effort has been to produce the best possible service and make it available to the people at all times. At present we not only care for those who become ill but we make a persistent endeavor to prevent sickness. Everyone who stops to reflect and compare must be impressed with the far-reaching effects of such a plan.

Our demand for higher standards in medical education has in turn promoted real science in medicine. In some instances this has been to the detriment of the art of medicine, for emphasis on the human side of medicine has seemingly diminished. Perhaps this is in part due to the increasing demands which present day improved medical service makes on the doctor's time. It is the family physician who most often maintains that intimate personal contact which will always remain an invaluable factor in the practice of medicine. Many leaders in the profession have long realized the importance of preserving this link between the profession and the public, for our mutual welfare depends on it. The general practitioners hold the position of being the basis of our medical practice and this relationship must be maintained. Science and research in medicine should be promoted, but this must not be accomplished to the detriment of the family doctor and the families he cares for.

The physician in the general practice of medicine should be given facilities that will aid him in promoting the art of practice, as well as

encouragement and assistance in his methods of investigation. The idea that all research must be carried out in elaborately equipped laboratories is wrong, and many of the most fruitful investigations will be done by those in general practice, in conjunction with their general routine. The general practitioner holds a most enviable position in society, but I am afraid that he is sometimes overawed by scientific progress. He should take advantage of the developments in science and try to apply them to the care and treatment of his patients, for after all, that is presumably what research and investigation are for; that is, to advance knowledge of disease, and then improve methods of treatment. If the general practitioner does not use this knowledge it may be lost, for those making the research studies are no more qualified to apply it practically than is the physician to make the research.

The Functions of the Medical Profession

The functions of the medical profession are first to advise, treat and care for those who are in need of their services; second, to plan and direct programs of preventive medicine and public health, and third, to protect the public in every manner possible against the activities of charlatans and irregular practitioners.

To most of us, nothing is so personal as medicine. Each community has one or more successful practitioners, whose success depends largely on appreciation of the fact that medicine is an entirely personal affair. In these modern trends of doing things en masse and in large numbers, there is some tendency to attempt to practice medicine by numbers and in an impersonal manner. This relieves the physician of many worries and great responsibilities, but the results of such a plan cannot be as satisfactory as one in which personal relations are maintained. It seems to me that it is the duty of organized medicine to do all that is possible to maintain this personal relationship between the physician and the patient, which is the foundation of medical practice in this country.

Medical associations formerly had as their chief function the professional improvement of their members. These organizations, particularly the county societies, the state associations, and the American Medical Association, must recognize the social, economic and political changes that have occurred as a result of the developments in scientific medicine. These improvements have come rapidly, and it takes a great deal of time properly to organize our societies to meet these changed conditions. There is evidence on every side that this is being accomplished.

Social Functions of the Medical Profession

In the very early days, members of the medical profession were also army or naval officers or connected in some way with the government. After this, however, there came a period when the profession was much isolated from society in general. This I think was the fault of the profession itself. In modern times, however, no one realizes more than we do, the necessity of close social relationship to accomplish our ends. The medical profession is also partially to blame for lack of knowledge on the part of the public of the work that it is doing. We are bound

by principles of ethics which were established many hundreds of years ago. These principles were established by members of the profession itself, and it is only by maintaining these principles that we are in any way different from those in other vocations. The principles of ethics must still be maintained in order to protect society but we must take a broader view of them than some were inclined to a few years ago. We must recognize the fact that anything that is printed or spoken in public is public matter and that the press is entitled to have it. The public needs information regarding health and disease and the editors say it is what they want. This is not a matter of personal aggrandizement or of free advertising for the doctor. The people do not want this; the editors say they will not have it; and the doctors by their principles of ethics, are forbidden to seek this. It has much to do with education, but nothing to do with advertising. The time must never come when we will feel justified in advertising in the daily papers, magazines, or by radio, because all we shall ever have for sale will be our personal services, and positive guarantee of the results of our efforts cannot be made. It is our duty to do all that we can to let the general public know what is good and what is bad in the practice of medicine. Through the activities of our public relations and publicity committees of our component, constituent, and national associations, I think that we can no longer be accused of being narrow in this matter of giving to the public all the facts regarding medicine that we have.

Each state association has its public relations committee, and in the more thickly settled communities the county society has a public relations committee. Ross of New York has been especially active in having each county society form a committee, the duty of which is to see that the profession promotes a coöperative relationship with society. He says that the functions of such a committee in the county society are (1) to seek to establish a desirable relationship with any health organization of any kind having anything to do with the practice of preventive or curative medicine, (2) to seek to aid the medical profession to organize to give better service, and (3) to help in adjusting differences of opinion between organized medicine and other groups.

Preventive medicine has developed entirely since we have learned, as the result of scientific investigations, to know more about the cause of disease. Preventive medicine has already removed certain diseases entirely, and will do still more in years to come.

Schools have been established for the purpose of teaching the special aspects of preventive medicine and public health. Some of our medical men are devoting all of their time to this work. In the larger centers, extensive organizations have been formed to take care of this field alone. In the smaller places, the general practitioners are much better informed on these subjects than they formerly were, and are generally doing excellent work. The great danger as I see it in the present scheme for the practice of preventive medicine and public health is that there is a tendency for these groups to drift off by themselves. There is an inclination also for many business organizations to try to accomplish the same thing. We have an admirable plan in the state of Minnesota which I think might well be copied elsewhere. All organizations in our state, lay or

medical, that are concerned with the practice of the healing art, are under the direct supervision of the Minnesota Public Health Association and the State Medical Association. One man, Dr. E. H. Meyerding, is secretary of both of these organizations, which means that all of the medical activities in our state are under the supervision of one head. The accomplishments of preventive medicine and public health activities are not fully realized by many of us. As our knowledge of disease advances, much more will be accomplished by these organizations.

We must never forget that public health and preventive medicine are as much a part of the practice of medicine as anything could possibly be. Those in charge of organized medicine in this country appreciate this and are making every effort to hold these organizations together, which is certainly for the best interests of society.

Economic Relations of Medicine

So much has been said about the cost of being sick and the cost of medical care within the last few years that I think many are becoming very suspicious. Much that has been said certainly will not bear close analysis. That there have been great changes in the economics of the practice of medicine, there can be no question. Whether these changes are out of proportion to what has been accomplished by them, is difficult to tell. In this country of 120,000,000 of people, there are 150,000 physicians, 50,000 dentists, 200,000 trained nurses, 100,000 practical nurses, and 8,000 technicians, all working in the interest of the art and science of medicine and public health. There are between 7,000 and 8,000 hospitals in this country. About 2,000,000 of the 120,000,000 people are sick enough to be in hospitals all of the time. Nearly 2 per cent of the population are seriously sick and an additional 10 per cent are slightly sick at all times. Ninety per cent of the illness is chronic and 10 per cent acute. In order to make the people happy they must be educated as to what constitutes scientific medical practice. I have of recent years been greatly impressed in visiting the commercial exhibits, particularly of the large medical societies, at the times of their annual meetings. One cannot help but be greatly impressed with all of the modern devices and implements which are aids in the practice of medicine. And one cannot help but wonder whether all of these are necessary and whether they have not taken away from the profession that art of medicine that we hear so much about. Many of these devices are very great aids, and it is through them that medicine has progressed to its present modern state. If a doctor adds to his laboratory and office equipment, he is obliged to have more space and more help. These are the things that are responsible for the increase in the cost of care. Times have changed and we have changed with them. When we say we have changed, we do not mean that this refers to doctors alone, but to everybody. It is probable that the economic changes in medicine are much less than in almost any other profession or industry at the present time. It is most appealing to hear about the great number of sick people who are not being adequately cared for. I have tried to receive definite information on this subject, but so far I have not been able to discover that many of the sick are going without medical attention be-

cause they cannot afford it or that adequate medical service is beyond the reach of any great proportion of our people. All through this economic depression many of the medical men have been giving their services, and as a result of keeping busy, they have been much happier than some others. Charity is more extensive in the medical profession than in any other profession or business. It is my experience that few people want to be free patients; most of them want to pay and will do so if it is within their power. I believe that this question of medical economics has been greatly overemphasized until it has become propaganda promulgated largely by those outside the practice of medicine. It is to the best interest of all that the socialization of medicine should stop where it is now. Further socialization will be carried out to the detriment of those whom it is supposed to help.

The Committee on the Cost of Medical Care will make its report this fall. This committee was established to study the problem, which according to the secretary of the American Medical Association, Dr. Olin West, is "the delivery of adequate scientific medical service to all of the people, rich and poor, at a cost which can be reasonably met by them in their respective stations in life." Those concerned in the cost of illness are the 120,000,000 persons in the United States who sooner or later become sick and the 150,000 physicians of this country. This committee has done a tremendous amount of work, and the results of its studies will be valuable. Many interesting and important problems have already been studied. For instance, the following has been brought out: At all times in the United States there are approximately 700,000 tuberculous persons. Of the children now attending school and college, about 960,000 will enter a hospital for mental disease at some period in their lives if the present rate of first admission is maintained. It has been stated that forms of neurosis alone are responsible for more human misery than tuberculosis or cancer. There are probably 700,000 cases of malaria in the United States each year, with malaria carriers far outnumbering the cases. Joslyn indicates that he estimates that there are about 1,000,000 diabetic patients in the United States.

We are very fortunate in that the chairmanship of this committee is in the hands of Dr. Ray Lyman Wilbur. The following fundamental principles were proposed by Chairman Wilbur:

1. The personal relationship between the physician and the patient must be preserved in any effective medical service.

This committee feels that intimate knowledge of family and individual variations is essential to the best treatment. Its members also feel that the cumulative experience of the family doctor gives him a distinct advantage whether or not his formal education has been excellent. In enunciating this principle, they say that man is not a standardized machine, and that therefore the knowledge acquired by the personal contact between physician and patient is a most important factor in treatment. It is comforting to those in the actual practice of medicine to know that those directing the activities of the committee feel as they do regarding personal contacts. And we have reason to feel assured that the reports from this committee will not change this principle in any way.

2. The medical service of the community should provide for a systematic and intensive use of preventive medicine in private practice, and for more effective support of preventive measures in public health work.

Members of the medical profession appreciate this principle fully and through organized medicine most of these provisions have been made and the work is in progress now. More progress has been made recently in preventive medicine than in the curative field.

3. The medical service of the community should include the necessary scientific equipment for adequate diagnosis and treatment.

The committee calls attention to the fact that early tuberculosis cannot be detected without the aid of elaborate laboratory equipment, and we must all agree to that. We must comment, however, on the fact that this equipment is of no avail unless it is in the hands of most expert diagnosticians. More harm than good can come from the use of the equipment unless it is so employed. The interpretation of roentgenograms of the chest in early tuberculosis is learned only after many years of hard work and study.

Reports of the findings of this committee have been sent out from time to time, and one is impressed with the tremendous extent of the work that it has undertaken, and also with some of the facts that it has set forth in its studies. The members say that an average of twenty-eight persons of every 100 who borrow from small loan companies do so because of expenditures arising from illness or death. Interest rates on these loans vary from 12 to 42 per cent per annum, which materially increases the burden of the average wage earner with a family. Of course the medical profession cannot be blamed for what seems to me to be an exceedingly high rate of interest, in these cases. Most physicians will discount the interest if patients wish to pay in installments.

In another place in the report, the medical care in a certain town is mentioned. Although there are fifty doctors who are idle much of the time in this town of 38,000 people, the reporter goes on to say that most of the people have some physical defect or condition needing correction, but that they rarely receive adequate care. Although it is likely that most people do have some physical defect, it is questionable whether the medical profession should attempt to correct all of these defects. It is difficult in the first place to say what a perfect physical specimen is, so I question very much whether all of these 38,000 people would be greatly benefited by having some kind of treatment. This report also says that these people rely largely on patent medicines, advertising quacks, or ancestor wisdom. The organized medical profession is trying every possible plan to protect the people against irregular practices. It is often said that this is a question of education, but unfortunately we find some of the most highly educated people who take absurd remedies regularly and seem to feel certain that they derive benefit from them. Quackery depends for its success on the mystery in medicine more than on anything else. We see examples of this in our daily practice. A good example of this is illustrated by the following case: Something more than two years ago a patient came to our clinic with all of the evidences of the most malignant type of cancer. He was carefully examined at that

time. In view of the fact that his general condition warranted carrying out any treatment that might offer him any relief, we undertook to see if there was anything we could accomplish. We were much interested in a treatment which had been recommended; that is, injection of a material into the blood stream. This treatment was carried out, and at present the patient is apparently entirely well. Several other cases of this kind have been treated with the same remedy but to no avail, and we are at a total loss to explain the result in this single case.

Other mystifying examples are frequently encountered among patients who present themselves with cancers, and on whom we have performed an exploratory operation, with removal of a small bit of tissue for microscopic diagnosis, and this examination revealed the fact that we were dealing with cancer. The growth in these instances could not be satisfactorily removed because of the extent and involvement of surrounding tissue. The incision was closed and the condition pronounced inoperable. Most patients under these circumstances live but a very short time, but there are a certain few of whom we have record, who had no treatment of any kind except the exploratory operation, but who apparently have recovered completely. If any treatment was used, of course that treatment received the credit for curing the condition. But these cases illustrate the mystery about disease and some of the unexpected results that are obtained by treatment. It is possible that some of the results reported by irregular practitioners in the cure of cancer have likewise been of this kind; it is more likely, however, that the results they obtain or report are in cases in which there never has been a cancer.

The Committee on the Cost of Medical Care calls attention to the fact that hospitals in the United States now represent an investment of $3,000,000,000. It also says that there is no systematic training available for hospital administrators. When we realize this tremendous investment in hospitals, we must appreciate the necessity of proper administration. I think, as a general rule, that hospitals are generally very well and economically administered, although it is possible that economics could be brought about in some places by trained administrators.

The final report and the recommendations of the Committee on the Cost of Medical Care are awaited with much interest by all of us. Everyone realizes that costs have increased, but there is probably no expense so adaptable as that of medical service. And, it is likely that the final analysis will show that the costs of medical service are in the hands of the people. I am sure that this analysis will also show that the greater proportion of the sick are receiving good care. It is probable that the least important economic need is reduction in the charge for medical services. Organized medicine is ready to coöperate in every way that will assure the best medical service to all of the people at all times.

Just recently, Dr. Ray Lyman Wilbur, chairman of the Committee on the Cost of Medical Care, addressed the Advisers of the Millbank Memorial Fund. In this speech he indicated that the principal recommendation of this committee would be that small communities, cities, counties or states should help to pay the medical bills of all of the cit-

izens by means of taxes. The Committee on the Cost of Medical Care does not feel that the national government should have any part in this.

Dr. Wilbur is quoted as saying, "If we organize our talent for producing medical services economically and efficiently, we shall undoubtedly find that the cost is not too great for our present society." It is evident that he feels that with organized, coördinated effort, we should be able to provide ample medical service of good quality for all of the people and with proper remuneration to the professional personnel, with the cost ranging somewhere between twenty and fifty dollars per capita per year. He asked whether we may expect that the local authorities will agree that the protection of the people's health is as important, though not as costly, a social responsibility as the education of their minds.

Furthermore, this committee apparently feels that if the plan of creating taxes to provide a fund for medical care cannot be worked out satisfactorily, then the solution of the problem is one of health insurance.

I believe that most of us feel that in any satisfactory form of health insurance, the cost must be paid partly by the person who is insured and partly by his employer and not by the national government.

Political Relations of Medicine

Medical organizations have not, until recently, been as active in legislative activities as they should have been. I hope the time will never come when medicine dips too deeply into politics. We must never attempt to control any activities except those pertaining to scientific medicine and its relation to society. On the other hand, I think that we should be more active than in the past, and that we must see that our state and national legislators are acquainted with medical activities, so that they may know how to act. These men are anxious to be kept informed, and some of them state that in the past the only information they could obtain was from the irregular practitioners of the healing art, who were always on hand when any medical legislative matter was to be considered. Medical organizations fully realize now the committee which deals with legislative matters is an important one. I think that in many instances it is important for the local county society to have a political or legislative committee. Such a committee may be of assistance to the local government and may help to solve problems connected with public health and other activities. Such a committee will also be able to take its problems to the state legislative body whenever it is advisable to do so. Nearly every state association has its legislative committee and these groups are busy. Their endeavors are giving excellent results. In many states, better laws are being enacted, regulating the requirements for the practice of medicine. Better laws have been made for the protection of health, and to facilitate the treatment of disease. Each year irregulars attempt to introduce new bills and these problems must be met in order to protect the people. Each year the question of vivisection is a subject for lively discussion in some part of the country; this makes it absolutely imperative to have an active organization in each state if we are to keep legislators informed so that

they can pass laws that will protect society, and defeat others that would be a detriment.

It is of the greatest importance that those in the national legislature should know about medical matters, and the American Medical Association has a legislative committee, and sometimes special committees, which devote a great deal of time to this work.

A matter of greatest concern to society and to medicine is up for discussion at the present time. This question of vital importance is a consideration of medical care for those who fought in the World War. The medical profession has a most profound regard for these men, and is anxious and willing to assist them in every way. When any of these men are admitted to civilian hospitals, they receive not only as good care as a civilian case, but often they are given special attention and care because they are veterans of the war.

The question now arising is as to whether the government should go to large expense to build new hospitals for them, or should they be cared for the same as other civilian patients, but at government expense, in the already constructed and only partly filled private hospitals.

In an editorial in *Minnesota Medicine,* December, 1931, the editor gave this statement:

"Following the World War, medical specialists were employed on a part-time salary basis under the United States Public Health Service to care for disabilities of veterans resulting from service. It was not long before the Veterans' Bureau operated hospitals of its own and used the service of full-time physicians in the employ of the Bureau, except for certain consultants. It is a question whether the change in policy furnished the veterans with better medical service as a whole.

"In 1924 the scope of disabilities cared for by the Veterans' Bureau was extended to include certain disabilities irrespective of their service origin. The next step was to provide in 1926 free service for all veterans, without regard to the nature or origin of the disabilities. This provision was protested by our national medical organization and various state medical organizations, including our own, as un-American, and physicians were not alone in their objections.

"Following this extension of service in 1926, the percentage of non-service disabilities cared for in veterans hospitals has increased, until in 1930 they comprised the majority of the patients cared for in the 33,128 beds now in existence. According to Dr. Shoulders the medical council of the Veterans' Bureau estimates that a maximum of 129,859 beds will be needed. This means the continuation of an extensive building program during the next few years to provide about 100,000 additional beds."

Dr. Shoulders says that the average cost of constructing veterans hospitals is approximately $3,500 for each bed; as estimated, the original cost would be nearly $400,000,000, and the cost of maintenance when completed would be about $200,000,000 each year. It seems to me that these sums must look alarming to taxpayers. Not all veterans can be cared for in civilian hospitals, but many of them can be well cared for in these hospitals by the staff that is already in service. It

is estimated that, at the present time, there are approximately 250,000 empty beds in these private hospitals.

The medical profession cannot see the wisdom of the government undertaking this tremendous expense in the face of all these unoccupied beds in private hospitals that were constructed for private service and where we feel that the very best service could be given to any ex-service man, perhaps in his home town.

The fair settlement of this problem is of the greatest concern to all of us now and in the future. We feel that it is one of the most important problems that has confronted society for a long time, and the medical profession is lending every effort toward its solution.

The public looks to us not only for relief from pain, but for protection against disease, against quacks, against the innocent use of harmful drugs and other products. We are earnestly endeavoring to help secure and carry out proper legislation to control the situations that arise. Often it is necessary to direct and even assist in social and economic adjustments in order to raise the standard of living and the health of a family or a community. Our manifold duties are constantly increasing because we are always eager to encourage any relationship or contact that will render the public a better service.

President Stevens: I will ask Dr. Perry of Durham to introduce the next speaker.

Dr. D. R. Perry (Durham): Mr. President, I certainly do thank you for this courtesy and I want to say that we are very fortunate and very glad indeed to have the next speaker with us today. Dr. Funk is one of the best, most beloved of the faculty, I am sure, of Jefferson Medical College. Only recently he has been elected as Professor of Therapeutics to follow Dr. Hobart A. Hare who died last July. It is a great pleasure and a great privilege that I have to present to this Society Dr. Elmer H. Funk. (Applause)

Dr. Elmer H. Funk (Philadelphia, Pa.): Mr. Chairman, Members of the Society: I would like first of all to express my real appreciation of the honor of being asked to come here and talk to you about a subject concerning which I for a number of years have been greatly interested.

A survey of the literature will reveal that there is an increasing number of contributions on the subject of carcinoma of the lung. In my student days, about twenty-five years ago, clinicians did not recognize cancer of the lung. Pathologists looked upon the lesion as more or less of rare and curious interest. Recently there has been a growing amount of evidence to indicate that this lesion, primary carcinoma of the lung, is not rare but relatively common, and there are several factors which have contributed to our recognition of the increasing frequency or the increasing incidence of carcinoma of the lung.

First of all there is a recognition that most of these growths originate in and around the hilum, and 90 per cent of those growths which originate in and around the hilum are bronchogenic carcinoma. That is, what we have been calling carcinoma of the lung is in reality carcinoma of the bronchus originating from one of the large bronchi.

Secondly, with the advent of bronchoscopy, it has been possible to

recognize not only that a tumor is present but frequently to permit of a removal of a section for histologic diagnosis and the establishment with reasonable certainty of the diagnosis during life; this before extra thoracic metastases have occurred.

In a study of well over a hundred patients with definitely proven primary carcinoma of the lung, these several factors were brought out: First, that it is probably four or five times more common in males than in females; and secondly, while it may occur at any time during life, our youngest patient is 21 and our oldest patient 77, over half of them occur in the decade between 35 and 45.

The significance of that is this: Given an individual, particularly a male in this age period who has pulmonary symptoms and pulmonary signs, to think of carcinoma of the bronchus as a possible diagnosis is advisable, and I think the fact that we are thinking of carcinoma as a possibility, not as a rare lesion, has enabled us to find more of these cases than formerly was thought to occur.

There is some discussion among pathologists as to whether there is an increased incidence at the post mortem table and yet most of the modern statistics would seem to indicate that there is an increased incidence of this disease. I shall not debate the point whether the occurrence is a result of better diagnosis clinically, pathologically, or not. The fact remains that this can no longer be considered a rare clinical entity and it is one that we should make some attempt to recognize during life even though we are face to face with little that can be done therapeutically although some patients, and one as I shall show you in particular, have had life very definitely prolonged, in many cases if not definitely prolonged made more tolerable by the use, for example, of roentgen therapy.

That brings me to a discussion of the clinical manifestations of primary carcinoma of the lung and no set clinical description can be given because, after all, the clinical picture varies depending upon a number of factors which I should like to emphasize in order:

First, the location of the neoplasm and the rapidity of the growth;

Second, the degree of bronchial obstruction produced, partial or complete;

Third, the presence of secondary infection and suppuration which is quite common;

Fourth, the pressure on adjacent structures;

Fifth, occurrence of pleural involvement which is frequently associated with some effusion;

And, sixth, the influence of the local and general metastasis.

In order not to unduly prolong the time which I have already used up in a measure, let me just say this briefly before showing you some slides illustrating points in the clinical picture:

The onset of the symptoms are most variable. Usually they are insidious but they are sudden, with pain in the chest or pulmonary hemorrhage or sudden dyspnea. In those in which the onset is insidious it not infrequently happens that they state that the initial symptoms were those like an ordinary acute bronchitis or a cold, or a cough, with fever, or pleurisy, or even of pneumonia.

The symptoms are in toto not different from other respiratory lesions. You have cough, expectoration, hemoptysis, pain, and dyspnea. I shall not go into a description of these symptoms as they occur in carcinoma of the lung except to state that there is no characteristic cough. There is no characteristic expectoration. We have not found, for example, in the current jelly sputum mentioned in textbooks one bit of help in diagnosis. As far as hemorrhage is concerned, it is not characteristic. It may occur early or late. It is rarely ever fatal. Dyspnea varies, sometimes being severe, sometimes slight.

Pain I wish to emphasize. Pain is not infrequently an early symptom. Often it is difficult to explain why they have pain. But in our patients, over 100, fully 75 per cent of them complained of pain as a predominating symptom, not to the exclusion of cough and expectoration but as a predominating symptom.

The general symptoms of weakness and loss of weight are usually late but they go somewhat in proportion to the disturbance in the chest.

Now a word about extrathoracic metastases. Clinically, these are present in about one-third of the patients before death and are demonstrable in about two-thirds of the patients after death. In the series which we studied, mainly patients sent to us because of chest symptoms, the incidence of the neurological metastasis, for example, was rather low, something like 12 per cent. In this connection it is interesting, however, to comment on the neurological metastases as witnessed for example in a clinic where there is an extensive neurological service, namely, in Boston. Buckley found central nervous system metastases in fifteen of thirty-seven patients with bronchogenic cancer, and this is the interesting feature: In eleven of the fifteen patients a diagnosis of primary tumor of the brain was made and the bronchogenic carcinoma was overlooked. An intracranial operation was performed in eleven patients and metastatic tumor removed in ten instances.

This is interesting as pointing out how a bronchogenic cancer may be latent as far as giving rise to local symptoms and signs is concerned, and if such are present they are more or less overshadowed by the metastatic lesion in the brain, so much so that at this clinic Buckley states whenever an individual comes in complaining of symptoms suggesting brain tumor search is made for a possible origin in bronchogenic cancer.

Finally, before I show the slides, pressure effects, such as we see in mediastinal tumors (and this is the tumor that originates about the hilum), are usually late. Mediastinal pressure symptoms while they occur are usually late.

Now let me have the first slide, please.

These are simply the points I would like to emphasize in closing: that an advance has been made in our conception of primary carcinoma of the lung by the recognition that in most instances, in ninety per cent of the cases, the origin is from a larger bronchus and that we had better discard the term "primary carcinoma of the lung" and speak of bronchial cancer;

Secondly, that this bronchial cancer is more common than the older textbooks and the older clinicians and the older pathologists believed,

and that the diagnosis can be made with reasonable certainty during life, even in the absence of extrathoracic metastases if we will recall that it is not a rare lesion, that there are certain symptoms and signs which are suggestive, namely, the occurrence in mid-life in a male of those symptoms and signs without a clearcut etiology suggesting tuberculosis or a foreign body and then resorting to skilled bronchoscopy and skilled bronchoscopy can see into the chest. All our other methods of inspection and palpation and percussion have to do with the outside of the chest. The roentgenologist can look through but the bronchoscopist can look into, and by looking into the bronchus he can observe certain changes which are suggestive of the presence or absence of new growth, and if there is any doubt he can remove a section of tissue with apparently complete safety. I have never seen any untoward bleeding, for example, or any untoward effects. He can remove it and by that method clinch pretty certainly whether or not there is cancer, and if perchance it is a squamoscell cancer, almost certainly that it is primary in the lung and originating from the bronchus. (Applause)

President Stevens: We will now hear from Dr. Reynolds, of Asheville, who will talk on "Away with State Medicine—If Not Who's at Fault?" (Applause)

AWAY WITH STATE MEDICINE

Dr. C. V. Reynolds, Asheville

Twelve years ago I called this body's attention to most of the thoughts contained in this paper. The title at that time was "Medical Legislation"; now it is, "Away with State Medicine"; tomorrow it will be, "Federal Medicine." It is by request that I appear before you again and it is with a fond hope that this time we may hear the call.

I am going to be brave enough to make this challenge: that if State or Federal medicine ever comes, it will be the fault of the physicians, not the laiety. There are two schools of thought—one, *individualistic;* the other, *collectivistic.*

The individualistic could be divided into two parts:

(a) The internist, who thinks in terms of the individual.

(b) The specialist, who thinks in terms of part of the individual.

Again I challenge the specialists to make complete diagnoses, either as individuals, or in groups, and not think individualistically, as we do now, but collectivistically, as is done by public health workers today.

The trouble is we are not health-minded. We think too much in terms of curative measures, and too little in terms of preventive measures. How can we set about to accomplish this change? First, prenatal care through the obstetrician. Second, infant and pre-school care through the pediatrician. These two, with the general practitioner, will (if they do their duty), blot out forever and a day state medicine.

The basic element of any successful endeavor is a sound organization carried forward intelligently, with each integral part clicking together. Through the State Board of Health, the City and County Boards of Health and the Press, every expectant mother should be impressed with the need of prenatal care as an essential in safeguarding herself and the welfare of the infant in utero.

This accomplished, the expectant mother consults the obstetrician, the first essential step in eliminating State Medicine. The obstetrician protects mother and child in utero and at birth; then turns the infant over to the pediatrician (or becomes one himself), who in turn assumes the responsibility of the child, and that responsibility does not end with its feeding and medical care, but the prevention of all disease, preventable or correctable,—this, the second, and most important step in eliminating State Medicine.

This being done, the child reaches school age. The physician has, as Sam Jones once said, "made thousands of dollars and saved a few souls."

A card index should be kept of each child, and those failing to accept the preventables or correctables, should be reported on to the State, County or City Health Departments, and in appreciation of such assistance, these departments should flood the parents with literature, which will cause a return visit to the physician for treatment.

Another important step in the eradication of State Medicine is a better understanding between the Public Health workers and the physicians, and this, to my mind, could be accomplished by having ex officio appointees from each medical society in the State of North Carolina as ex officio members of the City or County Health Departments, through whom all important questions should be brought to the Society for discussion, which will in turn cause its members to have a voice in Public Health work, and bring about health-mindedness in the individual physician.

Medicine, as an applied science, has, through individual, rather than a collective effort, made marvelous advances through her various avenues of research; this reward of merit through individual attainment should not be lost.

Then it behooves us for the sake of the preservation of humanity, to have a strong committee to watch, plan and outline, for those who are endeavoring to pass medical legislation in the City, County, State or Federal Government, so that we may guide their efforts in the most effective way. Never before did we need, as we do now, intelligent leadership.

The doctor—"God bless him!"—for the people have never paid him —has worked harder, longer, suffered more, endured more, and received less than any other professional man. But this sacrifice has been made in a field of curative medicine; useful, but growing less important as preventative measures develop.

No words of appreciation can begin to give justifiable praise to the doctor, for his willingness to serve humanity, his forgetfulness of self, and his duty to his family—no phobia of contagion too great to prevent his rendering a service to his fellow man. For remuneration?—yes—but his altruism is, and, I hope, will ever be unquestioned.

Yet, may I ask, has he not neglected his greatest asset to man in awaiting his call for aid and then attempting a cure, rather than anticipating his ills and preventing his calls. He advises how to get well where he should first advise how to keep well.

The doctors are constantly discussing their problems, making known

their mistakes, as well as their accomplishments; they have forged ahead and have done much, yet they know and the public knows that with their present methods they are not by one half doing what could be done, and at a fast-growing prohibitive expense.

Experience has taught the medical profession something, and the body politic should awaken, ere it is too late, and realize that certain fundamental changes are to be made, and that this is necessary to society, before they are embarrassed by having our professional duties poorly done by incompetents.

The doctor's already accumulated knowledge, if awakened and put into active service, can reduce sickness and accident, one half. The philanthropists, the politicians, and the people at large have this interesting knowledge,—made possible for them by physicians, and given to them by the medical press. Should we sit idly by and see this vast waste of human life?

Individual problems may cause us to sit idly by, forgetful of, or with indifference to, the greater problems of the community, the state, or the United States health program, and we will and are suffering the consequences of the inactive, thoughtless, indifferent citizen, and suffering in consequence of our inactiveness. We must become health-minded and politically minded.

The physician is still an individual, and deals with his patient as an individual, failing to recognize that community interest must and should be conserved, even at a loss to the individual for the good of many.

The doctor is not mercenary—neither is he pessimistic—nor would I call him an optimist. He is schooled and trained to think for the preservation of human life, for the betterment of the physical being, realizing that health is the foundation of happiness, prosperity, and independence, and that sickness leads to inefficiency, which produces misery, poverty, degradation, crime and vice.

Vast and wonderful opportunities are most universally offered, yet *collectively* the medical men have not prospered and made what they should out of their opportunities.

In the war census there was found one-fourth illiterate—an utterly inadequate number of skilled mechanics and technicians, and one-third of our young manhood physically unfit.

Of late we have come to realize many of our shortcomings, and is it not *high* time for us to set about to prevent the preventable, to correct the correctable, and to cure the curable?

The world is going through a horrible experience, never before enacted in such vast proportions, brought about, in my opinion, by a reckless expenditure of governmental money, anticipation bonds and excess operating expenses, resulting in a bureaucracy, rather than a government of the people, for the people and by the people. This chaotic condition, brought about by *political* chicanery for *special* interest and *personal* gain! Shall we sit by, ignorant or indifferent, and see our material assets swept away, forming a debt our great, great grandchildren will still be paying?

This is an age of reconstruction, and a readjustment of conditions there will and must be. Procrastination is the thief of time and oppor-

tunity. Therefore, it behooves the intelligent physician to step in and guide or mold policies before some well-meaning philanthropist guides or molds them for him.

Then the first step in the solution of such a vital question is to select a special committee of physicians to analyze the various problems,—this committee working first in its local society and then in conjunction with a similar committee from the American Medical and the A. P. H. A., State Board of Health and the Southern Medical Association, and coördinate their conclusions; the adoption of which should, and I believe would, bring about a coöperative effort for a common objective.

The greatest asset in any state lies in the efficiency of the moral, mental and physical development of her womanhood and manhood.

It is my opinion that health is the basic element of human efficiency, and upon it stands or falls the power or perfectedness of the state or nation. The state is constantly and without objection, looking after and controlling her inferior assets; why then is it not to her greater advantage to seek to raise the standard of, and to aid in protecting her greatest asset, the human family?

There is not a voice raised against the state's efforts towards the prevention of disease, but there has not been a sufficient effort on the part of the physicians in the prevention of disease. When, through the activities of the State Health Board, there are found to be curables uncured, operatables unoperated, defects unremedied, focal infections still infecting,—yes, it is high time for us to devise a way to remove this existing block in her progress.

Again, nothing is said when these curables or operatables are among the indigent—the poorest human asset the state possesses, but a storm of indignation is immediately raised when the state begins to protect her greatest asset, the better element of society. (Suggestion: The county is required by law to take care of her indigent; why not see to it that she does, through a committee, on a fee basis?)

Illness, injury and deformity,—the greatest factors in inefficiency, suffering, sorrow, poverty, vice and crime—are not limited entirely to the indigent, but occur throughout the entire population.

The surgeon, the internist, the pediatrician, the dentist, etc., have had the indigent, the ne'er-do-well and the well-to-do under their professional care and guidance for years, and those who sought advice have received much, but by a different scheme of things. The physician must be willing to admit that a great deal more could be accomplished and that through omission, rather than commission, he rendered a less efficient service. Some form of reformation will, and should be, made, and the present scheme of not differentiating between classes is the best, until medical men offer a better one and one which will accomplish as much, if not more, good.

The State can handle her charity, assume the entire expense, and accomplish much good among her lowest type of citizenship.

The State, by not differentiating, can reach her greater asset and charge a sufficient sum to save her harmless as to expense, and gain much more by restoring to health a higher type of citizenship. Group medicine with one fee would solve this problem.

Health work is a stupendous problem, and upon its continued reformation, depends the preparedness of everything that lives, and the perfectedness of everything material.

The value of the physician's superior knowledge in formulating plans, is essential to its development, as well as to its success or failure. Then it is a serious question that is confronting us, and it behooves,—in fact, it is of paramount importance that we should properly estimate its value—realizing that it is to our collective, as well as our individual advantage, to give it careful consideration.

The Crimean War, the Civil War, the Spanish American War, all stand out with sad histories of having lost more men from bacterial diseases than from the enemies' bullets.

The preventive measures that have passed the experimental stage were legally enforced in the army; so, if these measures are imperative and essential in the army, *why*, may I ask, are they not alike imperative in civil life?

I am sure such instances could be multiplied; yet at the present time immunization is a voluntary proposition, and the general practitioner has not immunized his people, nor has he made a strenuous effort so to do. The State should be empowered through legislation to enforce such highly efficacious measures, and use it until we correct this omission.

The public health problem is to the casual observer an intangible proposition, and it may be yet some time before the legislators realize its full importance, and appreciate the fact that man is its greatest asset when his moral, mental and physical well-being is conserved—and its greatest liability when these essentials are neglected.

Public health work in the prevention of disease, the preservation of health, the prolongation of life, the lessening of morbidity, the lowering of mortality—through its laboratories, its field workers, its statisticians, has shown through this method of education that a high standard of health can be obtained. It has also been shown that its conservation has been sorely neglected, to wit:

Subjects for immunization have remained unimmunized;

Curables have remained uncured;

Operatables have remained unoperated.

To relieve this situation, let the physician wake up to his individual responsibility and see to it that his clientele comes up to a high standard of physical fitness. Should the State, through its laboratories, its field workers, its statisticians, ascertain that a member of a physician's clientele has been neglected,—in that event the State should (and it becomes its duty to), enter in and protect its defectives.

Any one of the State's agents should make every effort to relieve the defective through the parent, guardian and family physician.

A monthly report should be made to the County Medical Society, which should in turn endeavor to meet the situation. This failing, the State should take prompt measures for the relief of the sufferer.

There is a clear and distinct duty the State owes to its citizens who are in need of and have not received medical or surgical treatment. This relief should be given by the best qualified medical and surgical men, who should receive adequate remuneration for services rendered.

This service should be financed through taxation and with disregard to class distinction.

Where the individual physician fails to respond to his greater duty to the community at large, his individual and personal relationship as a family advisor should become a matter for collective action by community physicians; otherwise, this situation should be improved through the State.

In conclusion (if I have made out a case for your consideration), there is a serious problem that confronts unorganized medical men, and a call to assemble our forces to receive instructions to become health minded and ward off State Medicine; to become politically minded to prevent further encroachment of Federal Medicine; striving always to maintain the physician's interest in his patient as a human being in whom he has a personal, as well as a professional interest; ever mindful of our ideals, and safeguarding the high principles of medicine.

President Stevens: We have in the audience at this time Mrs. Freeman, the President-elect of the Women's Auxiliary of the American Medical Association, who I would like to present to the audience. I will ask Mrs. Freeman to come forward. (Applause)

Mrs. Freeman: Mr. President, Ladies, and Gentlemen, members of the North Carolina Medical Society: I have the great pleasure of bringing you, first, greetings from my father whom many of you knew as your old professor, Dr. W. W. Keene, of Jefferson Medical College. (Applause) My father is still living at the age of ninety-five. He is tremendously interested in the work of the Auxiliary. He is tremendously pleased that I should have been selected to head that organization for the next year and whenever I go away on an Auxiliary trip he says to me, "Be sure to look up any of my old friends and pupils and patients and tell them how happily I look back on the days of my active work in the medical profession and if any of them ever come to Philadelphia I hope they will come to see me."

He said to me only the other day, "You know, very few of my old colleagues ever come in to see me," and I said, "My dear father, at the age of ninety-five you must remember that most of your colleagues have passed on." (Laughter)

So I really bring you his message, and mine—a warm and cordial invitation to call on him if you are ever in Philadelphia.

I want also to bring you greetings from the National Auxiliary. We are working very hard indeed to try to carry out the purpose for which we are organized, to act as liaison officer between the medical profession and the general public. Public relations, I feel, is our chief function, as members of various organizations, the parent-teachers association, the Woman's Auxiliary to the American Legion, the Women's Clubs, the churches, and all the thousand activities in which women are interested today. We occupy a unique position. It is a dual position. We are, so to speak, a junior partner in the medical profession and we as members of the boards of these lay organizations of women are in a position to direct their action in accordance with the desires of the medical profession.

We don't want to do anything without your advice and consent and

hearty support and if you will use the Auxiliary you will find us a very important press agent to pass on your ideas to the community at large.

I thank you very much for letting me speak to you. It has been a great privilege. (Applause)

PRESIDENT STEVENS: The next paper on the program is by Dr. Holmes.

HOSPITALIZATION AND TREATMENT OF VETERANS

DR. A. BYRON HOLMES, Fairmont, N. C.

Soon after November 11, 1918, the Congress of the United States made provision for the care and treatment of all who incurred a disability while serving in the military forces of the United States during the World War. As the years have passed, the provisions of this act have been made more and more liberal. Now any veteran will be admitted to the veterans' hospitals and treated without regard to the nature or origin of his or her disability. This means that every veteran, since and including the Spanish American War, will be transported to and treated in the veterans' hospitals, at the expense of the United States Government, without regard to the cause or nature of the disability.

The Medical Council of the veterans' bureau estimate that 130,000 hospital beds will be needed to carry out the provisions of this legislation. This means that the Government must construct 100,000 additional beds.

Dr. H. H. Shoulders says: "The average cost of constructing veterans' hospitals is approximately $3,500.00 per bed. The average cost of the professional staff is $151.56 per year per bed. The cost of maintaining these hospitals in 1930 was $4.42 per bed per day, or $1,613.50 per year per bed. The cost of completing the construction program alone would amount to over $360,000,000. The cost of the medical staff would amount to over $19,000,000 per year, when completed. The cost of maintenance, when completed, would be about $200,000,000 per year. These are not all. The cost of equipment for these hospitals and the cost of transportation of the veterans to and from these hospitals cannot be even approximately estimated."

As the years pass, the needs of the veterans will become less and our government will own this great system of federal hospitals scattered throughout the country. This will be a great temptation to our legislators and politicians to be more and more liberal and, perhaps, they will admit to these hospitals, as vacant beds occur, all dependents of the veterans, all employees of the government *et cetera*—the beginning of a vast system of socialized federal medicine. In other words, if this building program is completed there will be developed a federal system of hospitals throughout the country which ultimately will destroy all community and private hospitals. Without the war we would have most likely gone ahead developing our hospitals as local owned and controlled institutions with the state and federal government taking care of the blind and helpless, and furnishing homes for the orphans, the old people, the old soldiers and the mentally sick.

In the United States, we have nearly four billions of dollars invested

in hospitals and spend two hundred millions of dollars yearly for construction. These hospitals are owned by the public and are a very essential weapon in our fight against disease. The rapid evolution of medicine bringing with it such a great demand for workshops has forced us to build and equip these institutions for the sick, to enable us to give to those who come to us the best there is known to medical science. If the proposed building of hospitals by the federal government continues, we may see most of our hospitals closed or being used for a purpose entirely foreign to the purpose for which they were constructed. Leaving off all monetary considerations, we still have the fact that local hospitals must be protected because the hospital is the center of medical practice and must not be in any way curtailed in efficiency.

During the last thirty years, years of unparalleled scientific progress in medicine, the individual doctor has been gradually deposed from leadership in a profession which is rapidly becoming socialized. The loss of prestige by the individual doctor is appalling. This country has passed the period of fastest growth and is assuming the more stabalized conditions of older nations and is becoming more and more socialized. The government is assuming more and more functions. Regulation is superseding competition, which is being eliminated because of waste and friction. Medicine is being absorbed by this octopus—Efficiency. We must face conditions and meet them fairly and squarely as they come before us.

Modern medicine as it becomes more scientific grows more exacting. In its rapid expansion medicine invades the realms of sociology, industry and penology. It calls for more and more study and thought. It must have honesty and truth. It cannot be subjugated to selfish motives without gross injustice and serious hazard to mankind. It cannot flourish when physicians and laymen ignore the fact that medicine is a science —not a tawdry business.

The continued multiplication and extension of public health clinics and services, as well as charitable institutions and industrial clinics, all tending to disrupt private practice, are offering formidable competition to the individual doctor. The government now proposes to spend a vast sum of money to construct and equip approximately four times as many hospital beds as they now have. If this invasion of the realm of medicine continues, we will soon find that the cost of our education and training to be an excessive ante in a game in which the cards are stacked against us. I feel it is time for us, as a profession, to let the public know that we have certain rights.

> "Now I but chide; but I should use the worst
> For thou, I fear, hast given me cause to curse."

No one will question for a minute that the veteran, who offered his all to his country and was disabled in her service, is entitled to the best possible care and attention. What do we propose in lieu of the government spending this vast sum of money to construct more beds for sick and disabled veterans? (1) That the hospital building program should stop, except for the building of sufficient beds for the veterans suffering from mental diseases, and all building plans should be modified, as far

as possible, by location and distribution, to meet the needs of the civilian population of the future after the veterans have passed away; (2) that a modification of the veterans' legislation should be asked allowing that the veterans be taken care of in their own home or a hospital of their own choosing, by a doctor of their own choosing. The American Medical Association makes statement that there are available a greater number of vacant beds throughout the United States than is proposed in the building program. These beds are now available rather than wait for the construction of new ones.

The slogan we should adopt—"Every Sick, Injured and Disabled Veteran Cared For in Their Own Home or Home Hospital, By a Doctor of Their Own Choosing." The foundation of our social structure is the unit of family life. The present plan of medical care for the veteran is conducive to breaking up the solidarity of family life with the Government assuming powers that rightfully belong to the family, instigating a program contrary to the foundation of our present social order. We must recognize the danger in all social schemes which separate the members of the family. Success in the practice of medicine depends upon the fact that we take each member of a family as an individual and handle the patient as such, rather than give him a number and try to fit him to the group yardstick. Physicians must not be debased to the position of a cog-in-the-wheel. That way lies the destruction of individual initiative, the lessening of responsibility, the lowering of standards and the reduction of a great profession to the cellars of oblivion.

How can we best put our slogan into operation? (1) Quietly educating the American Legion and making friends of them. Impress upon the members of the Legion the necessity for the development of community hospitals, whether for veterans or anyone else, for all medical and surgical conditions. We have here a great opportunity to impress upon a selected group of our best and most active citizens the disadvantages of state and federal medicine; (2) tell the veterans that hospital beds are now available rather than wait for them to be constructed. Under our plan the veterans will be admitted immediately to the hospital rather than after several weeks, as at present. The most common illness today is influenza. If our plan was in operation the veterans could be treated in their own home by their family physician—under the present plan it is impossible for the veteran to receive treatment for influenza, at the expense of the government, because he has either died or has recovered before he can be admitted to a veterans' hospital. The most common causes for hospitalization are appendicitis and automobile accidents. We know the absolute necessity for immediate hospitalization in these conditions. Except for chronic conditions the present plan for treatment and hospitalization of the veterans is almost worthless to the ones who really need the benefit of this legislation. Too often do we see a veteran, who is unable to pay for hospitalization, having his treatment delayed while the government is caring for one well able to pay for his treatment. We must remember that what is finally accomplished will be largely determined by the American Legion which is well organized, has very efficient leadership, and has an appeal in the name of the disabled veterans which is unanswerable. We must acquaint the

Legion with the facts. This, I feel, should be done quietly through the organization of group committees or individuals, medical veterans largely, who are members of the Legion posts. The leaders of the American Legion will, I think, meet us more than half-way, if we can show them a better plan for the treatment of the disabled veterans. It is absolutely essential to the future of medicine in this country that the present federal hospital program should stop and the American Legion be informed that we now have existing facilities for the medical care of the veterans—facilities which are quite adequate for the general population, including wives, children, mothers and fathers of the veterans and that we are perfectly willing to coöperate with the Legion and the Veterans' Administration by administering the necessary medical and surgical care and doing all the paper work necessary in connection with the treatment of all sick and disabled veterans; (4) I would urge you to contact your Congressmen and Senators and give them an idea about what is going on and how we feel about building more hospitals. The family advisors of Senators and Congressmen are the best men through which to work. These men have the confidence of our representatives and through them the proper information may be quickly disseminated. The hospital building program of the present is not by any means determined by the Legion or the Veterans' Administration but largely by Congressmen. We must remember that any type of federal medicine, including federalization of hospitals, must be enacted into law by Congress before it is operable. There is no question that if the profession of the country were united and would work they could control legislation relating to the practice of medicine.

The House of Delegates of the American Medical Association, at the last meeting, endorsed the Shoulders' Resolution—a Resolution which provides as a substitute for the care in Government hospitals of veterans with disabilities of non-service origin, a per diem to pay for needed hospital care. A committee from the American Legion turned down this Resolution and said they did not care to spend any more time discussing it. But the powers that be in the Legion feel very friendly toward our plan in so far as it applies to emergency non-service connected illness and disability. The Shoulders' Resolution may never be adopted (some of the state organizations of the Legion have unanimously endorsed it) but it certainly served as the entering wedge in this discussion.

A Resolution, embodying the principles of our plan, was presented to the Executive Committee of the North Carolina Department of the American Legion, was favorably discussed and passed to a committee for further study and report to the Annual Meeting in July. We should contact every post of the Legion before July, as this Resolution will be voted upon at that time. I have found the members of the Legion very much interested and if we will work to the end: "EVERY SICK, INJURED AND DISABLED VETERAN CARED FOR IN HIS HOME OR HOME HOSPITAL, BY A DOCTOR OF HIS OWN CHOOSING," we will eventually prove to the American Legion the many advantages—to the veterans—of our plan as compared to the one in operation today. Just as soon as we can convince the Legion, our fight will have been won.

DISCUSSION

Dr. John Q. Myers (Winston-Salem): Mr. President and Gentlemen: Dr. Holmes has presented a most valuable paper at an opportune time and in regard to hospitals I will say:

We cannot think of our civilization without its hospitals, but we must think just what the hospital is doing today and what its social consequences are apt to be in the future. While the growth of these institutions in our country has recently been at a rapid rate, there has been over the years slower evolution and growth which has been paralleled by the growth of medical science and the medical profession. Recent economic changes have brought us up with a sharp start to realize that the indispensable hospital stands now financially in between the patient and the doctor, and that some system of handling both the operation of the hospital and of medicine is required if we are to maintain the best that the medical profession has to offer to us all.

Our Secretary of the Interior, Dr. Wilbur, has wisely said: "Stop building federal hospitals."

The hospital has been made the center of medical practice. It has also put our governmental units into the hospital business. In some form or another the hospital must belong to the public. The care of the sick is an intimate personal business. It demands local interest and local support. Our strength as a country has come largely because of our ability to avoid class distinctions. Vertical cleavages in our various communities in the hospital field are apt to be distinctly disadvantageous. It seems to me that the federal government has built enough veterans' hospitals; that with the large number of available beds in every part of the country some plan for their more complete use should be worked out rather than to increase the already enormous capital expenditure in this field. One of our great difficulties in the United States is that we have grown too fast and have put our great national resources into fluid capital too soon, and that our capacity of management has been overtaxed. This is particularly true in the social field. It takes time to work out social processes. We are in danger of behaving in this vital field as do some of those who acquire great wealth unexpectedly. We need a period for a seasoning process to take place in the hospital field. The practice of medicine must still center around the patient, not around the bureaucratic administration of a physical institution. We must not let too many things come in between the doctor and the sick. We want as little red tape wrapped around our hospitals as is possible. We want to keep them responsible and responsive to local needs and alert to changes and emergency. With all due respect, Congress is not selected on a basis that makes it an ideal board of directors or trustees for a national hospital system. Our national government has gone far enough, if not too far, in hospital building and management. These problems of the care of sick in the various states should be handled locally and methods found for coördinating what is done with the national plans for needy veterans. Further enormous capital expenditure by the federal government in this field will be a constant handicap in all future planning.

President Stevens: Gentlemen, the session is adjourned until eight o'clock this evening.

(The meeting adjourned at twelve twenty-five.)

SECOND GENERAL SESSION

TUESDAY EVENING, APRIL 19, 1930

The Second General Session of the Medical Society of the State of North Carolina convened in Lecture Room "A" of the Robert E. Lee Hotel, Winston-Salem, North Carolina, at eight-fifteen o'clock, Dr. M. L. Stevens, President of the Society, presiding.

President Stevens: The meeting will please come to order.

This is a continuation of the program of the general session interrupted this morning. At the close of the morning session there was remaining an address on, "The Preservation of the Health of our Youth from the Dentist's Standpoint," to be presented by Dr. J. A. McClung. Is Dr. McClung present?

Dr. McClung is here. We will be glad to hear your paper at this time. (Applause)

PRESERVATION OF THE HEALTH OF OUR YOUTH FROM THE DENTIST'S STANDPOINT

J. A. McClung, D.D.S., Winston-Salem

Mr. President, Members of the North Carolina Medical Society, Friends:

The North Carolina Dental Society appreciates the honor you have shown us in giving us a part in your program, and I feel that it is an honor for me to appear as one of its representatives.

It is always gratifying to us that we can come and discuss with you some of our mutual health problems.

For sometime now you have been favoring our Society with representatives. We thank you for your consideration, and want you to know that these men are always welcome and that their papers are regarded as a most vital part of our yearly programs.

We know that the services of both physician and dentist are required in the successful treatment of many adult cases; although it is to be regretted that in the treatment of children and young patients this cooperative service has been neglected by both professions.

Good health is man's greatest asset, and the future health of our people is built on nothing less than the health of our children.

Therefore, today, I thought it fitting to discuss with you some of the factors entering into the preservation of the health of our youth. I shall not attempt to bring out any new theories, but merely refresh your memories with a few dental facts pertaining to childhood.

It is said that through modern health education ten years have been added to the span of the average life. But of what value is longer life unless the years hold keen mental and physical fitness? It is dentistry's contribution not only to prolong life, but also to make life worth while by lessening disease and suffering, maintaining dental health and masticatory efficiency, and eliminating those toothless years of old age.

Hereditary influences effect the teeth as they do other parts of the body. This is shown by family traits in arch contour, and tooth form

and arrangement; also in supernumerary teeth and other abnormalties. But insofar as susceptibility and immunity to dental diseases are concerned, the hereditary factor is secondary. What may appear to be hereditary may really be caused by similar habits of living, or the adoption by the child of the bad dietitic or other habits of the parent.

In seeking the real cause of dental caries, which is, primarily, the beginning of most dental ills and many systemic lesions, we must go back to the earliest period of tooth development—calcification.

Calcification of the crown begins at the cusps end of the tooth, and we must, therefore, think of fissures or other developmental defects as occurring during the early development of the teeth. The periods of development when the crowns of the teeth are being calcified are, approximately, as follows:

Deciduous—central, lateral and cuspid crowns are calcifying from the 4th fetal month until birth.

Deciduous—1st and 2nd molar crowns; from 5th fetal month until 6 months after birth.

Permanent—1st molar crowns; from 6th fetal month until 5 years of age.

Permanent—central and lateral crowns; from 1st year after birth until 6 years of age.

Permanent—cuspid crowns; from 2nd year until 7 years of age.

Permanent—1st and 2nd biscuspid crowns; from 4th year until 8 years of age.

Permanent—2nd molar crowns; from 5th year until 9 years of age; and the

Permanent—3rd molar crowns; from 8th year until 11 years of age.

Thus it is seen that the crowns of the teeth—the portions exposed to dental caries—are actually forming several months before birth, and continuing to form until about ten years of age. It is during this period, and long before the eruption of the teeth that the fissure or other developmental defect occurs. How very important that the diet of both mother and child should contain ample quantities of the bone-forming elements, if calcification is to proceed normally!

As the teeth erupt into the mouth, they pass into an entirely new environment. They, of course, carry with them all of their developmental defects. Some teeth decay in this new environment, while others do not.

The mouth is an ideal incubator for the growth of bacteria, and bacteria are always present. Nature has provided saliva, one of the digestive juices, which constantly bathes the teeth. The oral cavity, being the portal to the alimentary canal, constantly contains a certain amount of food debris.

With these facts before us, let us consider the life history of an occlusal cavity in a permanent first molar tooth. During the pre-natal and lactation periods, the islands of calcification, represented by the several cusps of this tooth fail to coalesce, resulting in a very fine crevice or fissure in the valley between the cusps. This remains without decay until at 6 years of age, the tooth erupts. In the bottom of the fissure, after the tooth has erupted, we find a stagnation of saliva, accompanied

by food debris and bacteria. In this stagnation, we find bacteria present, and if carbohydrates be present (sugar, either eaten as such, or starch which has been converted into sugar by the action of the ptylin in the saliva) fermentation occurs. The by-product of this fermentation is lactic acid. The acid is neutralized either by the salts in the saliva or the basic salts of the tooth. When the latter occurs, the tooth fissure is broken down, and we have the resulting cavity or dental caries.

Dentists and physicians recognize the fact that dental caries is more prevalent during childhood than in adult life. This is not hard to understand, when we consider the following facts:

First—Developmental defects, such as fissures, which increase susceptibility until such defects are corrected.

Second—From six to twelve years of age is a transition period from deciduous teeth to permanent teeth. During this time the teeth do not have their normal approximating contact, and the cusps do not occlude normally, interfering with the masticating efficiency, all conducive to plaque formation and salivary stasis.

Third—Food habits of the average child resulting in an increased susceptibility; and

Fourth—The lack of hygienic care by the child.

The above combination subjects the teeth to the ravages of decay during this period of life.

When referring to the deciduous teeth, it is a mistake to speak of them as temporary, because they are supplied by nature to fill a definite period of the child's life. Mention has been made of the periods of development of the deciduous teeth, now let us consider their periods of usefulness.

The deciduous centrals and laterals erupt about the 6th month and are lost at 6½ years. Their functioning period is 6 years.

The first and second deciduous molars erupt about 1½ years, and are lost at 10½ years. Their functioning period is 9 years.

Deciduous cuspids erupt about 1½ years, and are lost at 11½ years. Their functioning period is 10 years.

In summing up the usefulness of the twenty deciduous teeth, we find that it covers that period of life from 6 months after birth until 11½ years of age.

These facts should be borne in mind, and every effort put forth to see that they are kept up to their maximum efficiency during their period of usefulness. Is it not the duty of the physician, as well as the dentist, to impress upon the minds of the parents the necessity for preserving the deciduous teeth? If neglected, cavities are apt to develop, often causing pain and sleepless nights. With such a condition, the child cannot properly masticate, and is not getting the full nutritional value from his food at that period of life when it is most essential.

Should the dental pulp become exposed, the pathway is opened for focal infection, which may enter the circulatory system, and lead to a heart lesion or other systemic disturbances.

Such offending teeth require extraction before their functioning

period is completed. The early loss of one or more of the deciduous teeth is simply the loss of one or more segments in the dental arch, thus preventing the normal growth and development of the jaws and arches as the child continues to grow and develop. Too much stress cannot be placed on the retention of all deciduous teeth until the proper time for losing them. With a lack in development of the jaws, there is not enough space to accommodate the permanent teeth, and as a result malocclusion is developed.

Teeth that are in malocclusion present an abnormal approximating contact, and are crowded and twisted out of their normal positions. Such teeth are more difficult to cleanse, are more susceptible to dental caries, and the investing tissues are subjected to abnormal forces, all interfering materially with the masticating efficiency.

These conditions prevail during that transition period, or during the school age. Thousands of children in North Carolina are attending school with countless numbers of cavities and abscessed teeth, and suffering from malocclusion. Is it any wonder that so many children are anemic, underweight, susceptible to disease and fall behind with their school work?

I am happy to say that the North Carolina State Board of Health is taking recognition of this fact, and a dentist has been appointed to serve on the Board. Through the able efforts of Dr. J. N. Johnson, the dental member, a dental health program is being organized, and dental health is being taught in the public schools of the state. This phase of work is under the supervision of Dr. E. A. Branch, Director of the Dental Division, who is covering the state and lecturing before the schools, faculties, and parent-teachers associations, impressing upon them the importance of dental health, and urging that dental health teaching be included in their curriculum. The results that are being obtained through the schools are most gratifying. However, Dr. Branch tells me that he finds the mouths of many children in such deplorable condition, and with the few school dentists now operating, they are treating only a comparatively few of the thousands in need of dental attention. Such treatments are for the purpose of visual education. Nearly every county in the state has a dentist on the Board of Health, who is studying the great need of furthering the dental health program in his county, and we are hoping that the physicians on the County Board of Health will support the dental health program in your county.

Doubtless, many of you gentlemen do not realize that in some sections of the state 96% of the children in the grammar schools are in need of dental attention. In order that you may fully realize the real state of affairs as they exist, I would like to read a part of a report sent out by the State Board of Health.

"A close check up on 502 children from eight to thirteen years of age attending the most centrally located school in High Point, that is those to whom a dentist is most available, from the standpoint of finances and distance, revealed the fact that only 30.4 per cent had visited a dentist, while 69.6 per cent had never been inside a dental office for treatment. The most appalling part, however, of this check-up is the

fact that 90.3 per cent of this number actually needed dental treatment other than oral prophylaxis. To realize the deplorable condition of some mouths of this group is beyond the power of the most vivid imagination. One has to actually see to believe that such a condition can be wrought, even by neglect in so few years. While the clinic was in progress in this school, many of the children, after having been treated, were heard to remark that their mouths had never felt so pleasant before—it was different—and that they expected to keep it so by daily brushing their teeth.

A similar check-up was made in two other schools, which might be classed as industrial or suburban, and here are the findings: In a group of 930 children between the ages of six and thirteen years only 9% had visited the dentist, and in most cases even this small per cent had seen the dentist only to have an aching tooth extracted. This is a striking reduction from the 30.4% that had seen the dentist from the first group mentioned. This drop, however, can be attributed to two fundamental reasons, namely, ignorance of the value of preventive dentistry, and inavailability of dental services, plus poverty. From this authentic data alone, one can assure himself that there is a very great need for dentistry in the elementary schools.

"To further substantiate this need the following fact is of interest. During the summer round-up of pre-school children last year in High Point, we examined the mouths of 592 white children approaching their sixth birthday. Each examination was carefully made by a dentist and of the above number, we found 58% in need of dental services other than oral prophylaxis."

Before the dental profession can be of fullest service to the public, the public must be educated beyond the shadows of doubt to the full value of dental service and its insurance to health. There is no way as efficient nor more economical for accomplishing this purpose of educating the public than by supporting the dental health teaching in the elementary schools.

Our problem is one requiring the help of every physician. It begins with the expectant mother, who should be informed of the special dental needs during the pre-natal and lactation periods. We must keep in mind not only the problem of nutrition, but also that of healthy and normal function, if the mother's own teeth are to be preserved, and the child is to develop well-formed and properly calcified teeth.

Children's dentistry is one of the most vital problems confronting the dental profession today, and I trust these few thoughts may stimulate interest in the preservation of the health of our youth.

President Stevens: We will now hear the discussion by Dr. Branch, Director, Division of Mouth Hygiene, State Board of Health.

Dr. E. A. Branch (Director, Division of Mouth Hygiene, State Board of Health):

Mr. President, I am going to take just a few moments of your time, and I have asked Dr. Houston Moore of Wilmington, one of your members who is vitally interested in this subject, if he won't continue the discussion.

Dentists today cannot practice intelligently without the coöperation and assistance of the physician. The dentists today who look into the mouth of the child or the adult and sees no further than the last tooth hasn't seen half. The dentist is realizing that as never before. Dentistry has made more rapid strides in the last few years than it has in any 25 or 50 years. Dentistry is making wonderful strides and, as I say, it is seeing a great deal further than that last tooth.

Now there are just two or three things that are going to have to take place. The laity is being educated and are demanding it. The medical profession is recognizing the need of it, and it is up to the dental profession to deliver it, and they are going to deliver it.

It is hard, though, when we go into a school of over 900 children (902 as this survey here from the High Point schools indicated) and find that only nine per cent of the children under 13 years of age in that group had ever been in a dental office. That in the state of North Carolina! We can go into the schools and find children of otherwise intelligent parents whose little mouths are just rotten. Almost every day I find children with such bad mouths that you can put your finger in them, press the gums at almost any place and squeeze out pus. One that I have in mind I could squeeze pus from five different places in that child's mouth.

Now, gentlemen, you and I know that the discharge from that gum about that little tooth in the mouth of a child about the first grade, if you please, is the same kind of corruption that would come from a running sore on its leg. I don't know anything in the world that is more nauseating than to have to get a pan of water, some castile soap and some clean rags and get out on the back steps and wash an old sore on somebody's leg. It nauseates the whole family. It makes them sick at their stomachs. However, they will come right into the house, sit right down for the evening meal not three feet away from the little boys and girls and watch them eat it and it won't phase a soul.

That is a deplorable condition. That is an awful picture, but we have it before us.

Now we try to explain the conditions to the mother. We tell her the things that are causing those conditions. However, gentlemen, you are the first men at the bat. That is why we are pleading to you. When we get that child, the wreck has occurred. We are just to gather up the fragments of what is left. There is no one on this earth who can impart those truths like you gentlemen.

The very moment that that mother finds conception has taken place, as ignorant as she is, as low in the financial strata as she may be, she needs help; she wants help. If she is in such condition financially or otherwise that she can get your service, then what an opportune time it is for you to implant health truths in that mother that will go on and on and on and on. You are the first men at the bat. We are begging you to knock a home run. (Applause)

President Stevens: We will have to limit the discussion, unfortunately, Doctor, because the memorial services were posted to begin in this room at eight o'clock. We want to hear from Dr. Moore, but we

are going to ask him to be very brief. I am sure he will appreciate the reason.

Dr. Houston Moore (Wilmington): I haven't much to say so it won't take long to say it. I hesitate to discuss a subject that I know so little about. However, Dr. Branch asked me this morning if I would say something in the discussion of this paper and I told him I would.

I first became interested in teeth as regards health about 15 years ago. I had a sister who broke down in health and she thought she had tuberculosis. She had almost gotten me to think the same way, although I couldn't find it. I took her up to Asheville to see Dr. Minor. He was out of the city so his partner, Dr. Ringer, saw her for me and he went over her carefully, and he told me it was her teeth.

She had her teeth removed. She immediately got well, gained 35 pounds in six months and has not been sick since. So Dr. Ringer is to be given the credit for my first interest in teeth in regard to health.

I do a great deal of obstetrics and consequently have been very much interested in pre-natal care of teeth of the expectant mother and the unborn child. The mother, during pregnancy, of course is always subject to dental caries and a breaking down of her teeth. I always have them consult a dentist. I have the dentist go over the teeth, fill any cavities he finds and clear up mouth infections, if possible.

The mother during that time is building a new individual, and the necessary elements to build that new individual must be had from her food. If she is not getting the proper food supply that furnishes the proper amount of calcium, phosphorus, iron and other contents that her body is called on to furnish, and the teeth being the most available supply of phosphorus, iron and calcium, her teeth begin to break down during this period. For that reason she should have the proper amount of calcium and phosphorus and iron and salt that you usually get out of eggs, shellfish, milk and the leafy vegetables and fruits.

Not only does she need those elements but she needs the vitamins that she can get out of those foods, especially vitamin c and d; c being the one that especially protects the gums. That is found in orange juice, lettuce, celery, and it is also found in all citrus fruits and tomatoes as well. She gets vitamin d out of eggs and milk and so forth.

To build strong teeth we must begin before birth, because he has told you how early the tooth germ is found in the fetus, and if that fetus comes here with a defective tooth structure in the beginning, it is hard to ever build strong teeth in that individual.

For that reason she should have the proper diet before birth. When that infant is born, if possible, it should be breast-fed because then you get all the necessary elements out of the mother's milk which you cannot get out of an artificial food that will quite equal it. Of course they have been very much perfected but they don't equal mother's milk.

Then, too, when the nursing is performed it strengthens the jaw, broadens it. It isn't like a long nipple that goes way down that is easily nursed. Consequently that prevents a great many high arch palates. It broadens the jaw and it builds a strong gum, muscular tooth structure.

If the infant has to be artificially fed the doctor should see to it that

it gets all the necessary diet, too, and he should look after its teeth as well as the other body structure and should begin on orange juice early, see that it gets fresh milk if possible.

As that child grows and develops I think it should have all of the dental care, dental hygiene and all the necessary foods that go to build strong tooth structure. And then in its pre-school days it should be checked over by the dentist and taught the proper dental care. The doctor should impress it on the mother, as well as the dentist, and see to it that after it gets in school its teeth are cared for.

I think that this movement of getting a dentist from each county to look after the school children is a wonderful one. You are going to see a great deal of benefit from that. The time to prevent these things is before they happen. If the school child is looked after, if the gums are taken care of and the teeth are taken care of, proper diet and dental hygiene—in other words, preventive dentistry—you are going to see a strong tooth structure develop.

Then as that child grows up to adult life you will not get those gum diseases and the breaking down of the teeth that you see in so many individuals today.

All of you have patients, educated people (you wouldn't think it of them) who come to you and are actually ashamed for you to look into their mouths. They haven't taken proper care with the toothbrush. The teeth are decayed; they have a lot of fillings, bridges and so on, whereas if they had had this pre-natal care, dental care and dental hygiene from birth right on they would not have had the trouble they are facing with their teeth. It would prevent many of your heart conditions and kidney conditions as well as other lesions if you would start early and carry this educating process out from infancy on up.

I have always wanted to see a closer coöperation between dentists and doctors. There has never been any strife, but if we can have a closer coöperation and get together and work to the same end, it will be very helpful. You cannot separate the two. So many infections come from the mouth, and the two are so interwoven that they are right together.

Thank you. (Applause)

President Stevens: The general session will now be turned over to Dr. VanPoole, the Chairman of the Obituary Committee, who will conduct the memorial service.

. . . Dr. C. M. VanPoole then took the Chair. . . .

Chairman VanPoole: Gentlemen, the time is so short—only eleven minutes left for us—that I don't see how we can do anything in that time, but if you wish to adjourn to another place, to one of the dining rooms and go on with this work, we will be glad to do that.

What is the wish of the Society?

. . . Upon motion duly made and seconded it was voted that the general session be adjourned to another room in order that quietness might be had for the memorial service. . . .

. . . After adjourning to another room the meeting then continued. . . .

Chairman VanPoole: Gentlemen, the meeting will come to order.

For several years it has been the custom of this meeting, this part of the meeting of the Medical Society of the State of North Carolina, to have a general address in the beginning, and then have personal obituaries, individual obituaries, and our friend Dr. A. McNiel Blair of Southern Pines has consented to make that talk for us this evening. Dr. Blair!

MEMORIAL ADDRESS

A. McNiel Blair, M.D., F.A.C.P.
Southern Pines

Mr. Chairman, Ladies, and Gentlemen:

At the request of your Chairman I am privileged to give an expression in this memorial service to those who have passed on during the year. I have a feeling of combined humbleness and appreciation for those men who have passed on to their reward since the last meeting.

The tabulated list numbers fifty-one. Fellows staunch and true. Not all those in the sunset of life, but many in the prime of their active devotional work, and had they been wearers of uniforms and insignia of military service, they would have been hailed as heroes and received tribute befitting their rank. But being just physicians, their passing is simply noted and their sacrificial services during life taken as a matter of fact and soon forgotten.

There comes before my mind a memorial service in which the immortal words of the Reverend Dr. William Pierson Merrill seems most apt and expressive:

"The world has a short memory even for the things which thrill and shock it most deeply, and it is well for us sometimes to stop and stand and look and remember. For one of our greatest dangers is that we shall forget, and yet we have gathered here for something more than a memorial service. We have come here to refresh our soul in the presence and inspiration of heroism. It is no idle ceremony to which we are called but rather a service to remind us living men and women that suffering may be and sometimes is nobler than action and that death may be more fruitful than life. The supreme achievement is to die well, to look death in the face and tell him to go about his business."

There is our beloved Kipling who again gives expression in such understandable words, and if there is any class of men to whom this tribute is most fitting, I believe it is to the physicians, and surely in their departure, having missed appropriate appreciation in life, they are justly entitled to this momentary consideration:

When Earth's last picture is painted, and the tubes are twisted and dried,
When the oldest colors have faded, and the youngest critic has died,
We shall rest, and, faith, we shall need it—lie down for an eon or two,
Till the Master of All Good Workmen shall set us to work anew!

And those that were good shall be happy; they shall sit in a golden chair,
They shall splash at a ten league canvas with brushes of comets' hair;
They shall find real saints to draw from—Magdalene, Peter, and Paul;
They shall work for an age at a sitting and never be tired at all!

And only the Master shall praise us, and only the Master shall blame:
And no one shall work for money, and no one shall work for fame;
But each for the joy of the working, and each, in his separate star
Shall draw the Thing as he sees It for the God of Things as They are!

Now we will just call the roll of deceased members, and as we pass along, any one who wishes to or will say anything in behalf of their deceased friends, please do so as we go along. Another thing I wish you would bear in mind is to correct this roll. If there is a name on here that should not be, we would like to remove it. If some one has been omitted that you know of, we would like to add that name.

The first name is Dr. J. Clement Allison, who was formerly of Statesville, then of Pittsburgh, who passed out during the year.

DECEASED DOCTORS

Allison, J. Clement ..... Statesville-Pittsburgh
Andrews, R. Mal ..... Rutherfordton
Bown, H. H. ..... Asheville
Brewer, J. F. ..... Asheville
Brownson, W. C. ..... Asheville
Clemenger, Francis J. ..... Asheville-New York
Cooper, Joseph A. ..... Bryson City
Cox, B. Thaddeus ..... Winterville
Davis, Charles W. ..... Rockingham
Dunlap, James M. ..... Wadesboro
Frazer, Thompson ..... Asheville-Buffalo
Graham, Wm. A. ..... Charlotte
Grier, S. A. ..... Harrisburgh
Hartsell, F. A. ..... Albemarle
Hartsell, J. A. ..... Concord
Heilig, Herman G. ..... Asheville
Henderson, Orro M. (Female) ..... Asheville
Holt, William T. ..... McLeansville
Irwin, John R. ..... Charlotte
Kirkman, T. A. ..... Siler City
Leggett, Virgie ..... Hobgood
Mauser, Roscoe ..... Hickory
Maynard, A. A. ..... Fayetteville
McLean, Peter ..... Laurinburg
Michaux, E. R. ..... Greensboro
Mitchell, William F. ..... Shelby
Moore, Edwin Gibson ..... Elm City
Morris, George B. ..... Goldsboro
Palmer, Robert W. ..... Sanford
Pemberton, W. D. ..... Concord
Pierce, E. A. ..... Ocracoke
Reid, John ..... Concord
Roberson, Charles ..... Greensboro
Roberts, Frank ..... Marshall

Scruggs, F. Bobo ..... Rutherfordton
Sikes, G. T. ..... Youngsville
Sink, Ray ..... Winston-Salem
Siske, Hanley A. ..... Pleasant Garden
Sommers, L. P. ..... New Castle
Smith, L. P. ..... Polkton
Stoner, Ira ..... Durham
Thompson, H. P. P. ..... Highlands
Watkins, George S. ..... Oxford
Wells, Horace M. ..... Murphy
Wharton, L. D. ..... Smithfield
White, J. W. ..... North Wilkesboro
Young, Lawrence B. ..... Rolesville
Zimmerman, C. C. ..... Durham
Zollicoffer, D. B. ..... Weldon
Total (49)

DR. J. CLEMENT ALLISON

Dr. J. Clement Allison, Statesville-Pittsburgh, aged 25 years, died in a hospital in Pittsburgh, Pa., where he had been seriously ill for several days, Nov. 1931.

Dr. Allison spent his childhood in Statesville, North Carolina and had many friends at that place. He completed his medical course in 1931, and was devoted to his profession. He served as interne in a Pittsburgh hospital the past year. He is survived by his parents, a sister and two brothers.

DR. R. MAL ANDREWS

Dr. R. Mal Andrews, aged 65, well known physician and former bank director, who lived at Sunshine, near Rutherfordton, N. C., died at his home at that place, February 17th, 1932, after a year's illness. He had been a practicing physician for many years and never refused to administer to the sick when his health permitted, regardless of remuneration.

Dr. Andrews is survived by his widow and one daughter. He was a member of the Brittain Presbyterian Church.

DR. HERBERT H. BOWN

Dr. H. H. Bown, died at his home in Asheville, N. C., June 22, 1931.

Dr. Bown graduated from Columbia Medical College in the year 1892. He was given license to practice in the State of North Carolina in 1917, and joined the State Society in 1918.

Although Dr. Bown was not in the best of health the last few months of his career, yet he administered to the sufferings and needs of others, at all hours, even during the last days of his life.

Dr. Bown was a practical Christian gentleman, a staunch supporter of his church and faith, and exemplified in his daily life the doctrines he professed. He was loved and esteemed by all who knew him.

DR. J. F. BREWER

Dr. J. F. Brewer died at his home on Cumberland Avenue, Asheville, N. C., Saturday, October 25th, 1931.

Dr. Brewer was a native of Corinth, Miss., before removing to Asheville.

He is survived by his widow, two sons and one daughter.

DR. WILLIAM CLARENCE BROWNSON

Dr. W. C. Brownson, aged 76, died at his home in Asheville, January 11th, 1932.

Dr. Brownson was one of the oldest physicians in Asheville, both in age and point of service. He was born in Ogdensburg, N. Y., and got his medical training at the University of New York. He practiced for two years in New Canaan, Conn., before locating in Asheville in 1878.

Dr. Brownson did general practice until 1910, at which time he began specializing in dermatology. He retired in 1928 after more than fifty years of active practice.

In 1890 Dr. Brownson married Miss Margaret Raymond of Talmadge Hill, Conn., and again he was married to Miss Elizabeth Grover of Louisville, Ky., in 1896, who survives him. He was an Honorary Fellow of this Society.

DR. FRANCIS JONATHAN CLEMENGER

Dr. F. J. Clemenger, aged 55, died at his summer home in Asheville, N. C., June 23, 1931, and was buried in Arlington Cemetery, Washington, D. C., with full military honors.

Dr. Clemenger maintained residence in Asheville and New York. He was a Lieutenant-Colonel in the United States Army. In 1900 he married Miss Daisy Sawyer of Asheville, who, together with one son, survive him. He was a nose and throat specialist.

DR. JOSEPH ANDERSON COOPER

Dr. Joseph A. Cooper, aged only 84, died at the home of his daughter, Mrs. Dan Warren, Bryson City, N. C., February 11th, 1932.

Dr. Cooper was born in Cherokee County but had resided in Bryson City the last forty years. He practiced medicine regularly up to six years ago when he retired on account of ill health.

DR. THADDEUS COX

Dr. Thaddeus Cox, aged 68, died at his home in Winterville, N. C., November 1st, 1931.

Dr. Cox was graduated from the University of Maryland in the year 1888. He was formerly a member of the legislature of the State of North Carolina. Dr. Cox died of cerebral hemorrhage.

DR. CHARLES W. DAVIS

Dr. C. W. Davis of Rockingham, N. C., died in a Baltimore hospital July 2nd, 1931.

Dr. Davis had been in declining health for several years. He was at Oteen until a few months prior to his death.

He is survived by his widow, who was Miss Lizzie Cole of Rockingham, and by his father, Rev. E. S. Davis of Zebulon, N. C.

DR. JAMES MENDENHALL DUNLAP

Dr. Jas. M. Dunlap, aged 81 years, died at a hospital in Wadesboro, N. C., February 14th, 1932. His death was caused by a stroke of apoplexy.

Dr. Dunlap was born in Anson County in the year 1850, the son of Joseph and Martha Burroughs Dunlap.

He was educated at Davidson College and at the University of Virginia and received his medical training at the College of Physicians and Surgeons of New York.

He was twice married and is survived by his widow and one son.

DR. THOMPSON FRAZER

Dr. Thompson Frazer, aged 55, died October 9th, 1931.

Dr. Frazer was graduated from Princeton University in 1897 and in medicine from the College of Physicians and Surgeons, Columbia University, in 1901. He located in Asheville in the year 1907 and devoted his entire time to the specialty of diseases of the chest.

In spite of the handicap of health, never too robust, he patriotically and early volunteered his services during the late war, was made a Major in the Medical Corps of the United States Army, and became Chief Medical Officer at Fort Bayard, New Mexico, from which place he was honorably discharged.

Dr. Frazer was a man of many gifts. His genial and scintillating humor made him an ever popular and much sought-after speaker at dinners; his versatility in medicine was manifested by numerous publications on widely varying subjects, which engaged his interest in the specialty he followed; and he was loyal to the best traditions of our profession, and showed his interest in many societies by membership in the Southern Medical Association, the American Medical Association, the American Climatological and Clinical Association, the American Heart Association, the National Tuberculosis Association, in addition to the local county and state societies, and was a Fellow in the American College of Physicians. To these all he gave of his time and talents liberally.

And so, in his passing, it seems fitting that some memorial to him should be spread upon the minutes of this Society.

I want to say something in reference to Dr. Frazer. I knew him as a soldier and as a physician. I campaigned with him about 16 months

DR. WM. A. GRAHAM

in the World War. I found him dependable, efficient as a soldier, a very well-rounded, splendid physician.

He changed his location, and immediately after changing, he kind of got away and his friends knew very little about him. His death was rather sudden, but I just want to say that he was a very splendid man, a very efficient man. I saw him go through times where the doctor was tried—late hours and grave responsibilities—and he acquitted himself with credit.

DR. WM. A. GRAHAM

Dr. William A. Graham, who was a son of Dr. Joseph Graham and Elizabeth Hill Graham was born in Gaston County, North Carolina, November 23, 1865, and passed away January 21, 1930. When he was four years old his parents moved to Charlotte and there the boy grew to manhood and into the esteem of the people.

He was to the manor born, coming from a distinguished parentage reaching back through many generations. His father was a prominent artillery officer and later surgeon during the Civil War. In after years he became one of the leading physicians and surgeons of this City and the State. His grandfather was twice Governor of North Carolina, Senator of the United States and Secretary of the United States Navy. His grandmother was the daughter of John Washington of New Bern, N. C., one of the foremost men of his time and a relative of General George Washington.

Environment and opportunity are great factors in the development of character, but the plan and foundation of life is laid in the heredity. The outward circumstances can only build upon what is blue-printed in the blood.

Dr. William A. Graham was educated at the Charlotte Military Institute at Charlotte, the University of North Carolina, and the University of Virginia. He then attended the College of Physicians and Surgeons of New York City (now Columbia University) and graduated in 1888.

He located in Charlotte and was associated with his father in the practice of medicine. His license to practice was granted in 1889 and he joined the State Medical Society in 1890 and was an Honorary Fellow at the time of his death. Dr. Graham soon took his place among the capable and outstanding medical men of the City.

His first wife was Miss Bonnie Oates of Charlotte, who died in 1911.

In 1919 he married Miss Jessica Vann of Wilmington, who survives him, with two daughters, Misses Jessica and Elizabeth Hill Graham and one sister, Mrs. George O. Fitzsimmons.

The morning after his death, the Charlotte *Observer* in its Editorial section said:

"Dr. William A. Graham held a place of marked affection in the hearts of the people of Charlotte, not only by reason of his kindly ministrations, but because of his admirable traits of character, his gentleness of spirit and the general qualifications that rounded him out as the admirable citizen. The son of one of Charlotte's most eminent physicians, he lived up to the best traditions of his father, and no higher

attainment than that could have been desired. Throughout his professional, social and private life he did nothing to forfeit the esteem of the people among whom he moved and he carried to the grave a community's love."

The Editor of the Charlotte *Evening News* wrote that "Dr. William A. Graham's death strikes sorrow into the hearts of a multitude of citizens of this community who have known him as a friend as well as a physician, but especially those who have been ministered unto through the years of his kindly and effective service.

"Dr. Graham was among the older practitioners of the community, having located here when a young man and when Charlotte was hardly more than a community of village proportions, and he kept unsullied by personal life and professional achievement the honored name that he inherited and which has long been so conspicuous in the life of this commonwealth."

Among his confreres he was noted for his devotion to his calling, for his kindly spirit, his clean and inspiring life and conversation, his loyalty to his friends and his daily upholding of all the honorable traditions of his profession.

He sought no public honors and pushed himself into no place of temporary prominence but by a life of earnest work, he won a high place in the hearts of the people.

We will miss his genial salutation and his cheering face as we come and go along the busy streets but we can never lose the salutary influence of his life among us.

We are but the squeezed out juice of all our yesterdays. The pulp and hulls are cast away, the wine remains to mellow with the passing years.

How soon this life is past and gone
And death comes softly stealing on
How silently
But did we judge of time aright
The past and future in their flight
Would be as one
The cradle is the starting place
Life the running of the race
We reach the goal when in the mansions of the blest
Death leaves to its eternal rest the weary soul.

John E. S. Davidson, *Chairman,*
R. L. Gibbon,
Geo. W. Pressly.

DR. S. A. GRIER

Dr. S. A. Grier, 90 years of age, died at his home in Harrisburg, North Carolina, March 18th, 1932.

Dr. Grier practiced medicine for more than a half century and at the time of his death was Surgeon General on the Staff of General W. A. Smith, North Carolina Confederate Veterans, he having been a gallant soldier during the War between the States. He died of a heart

malady from which he had suffered several years, pneumonia having developed some days before death.

DR. F. E. HARTSELL

Dr. F. E. Hartsell, 40 years a practicing physician of Oakboro, N. C., died in a hospital in Albemarle February 14th, 1932. He was 62 years of age.

Dr. Hartsell was graduated in medicine from the University of Maryland. He was a member of the Methodist Church and a Mason.

He is survived by three sons and seven daughters.

DR. JOE A. HARTSELL

Dr. J. A. Hartsell, aged 42, died of a heart attack at his home in Concord, N. C., February 18, 1932.

Dr. Hartsell was graduated from the Jefferson Medical College, Philadelphia, in the year 1912. He obtained license from the State Board of Examiners in 1914 and joined the State Society in 1916. He was the son of Mr. and Mrs. J. L. Hartsell, a prominent cotton manufacturer of Concord. He was one of the founders and owners of the Concord Hospital. When a medical unit was organized in the community for service in France during the World War, he enlisted, completing his service with the rank of First Lieutenant in the Medical Corps.

On January 26th, 1916, Dr. Hartsell was married in Philadelphia to Miss Leah Miller of Pittsburgh and they had made their home in Concord continuously since that time. He had long held membership in Central Methodist Church and for some years served as steward. He was an active Mason and Knights of Pythias. He leaves a widow and one daughter.

Dr. D. A. Garrison (Gastonia): That man, Dr. Hartsell of Concord, died very young. He was doing a wonderful work there, very bright, efficient. I knew him well. On one occasion I was connected with him in a coroner's inquest where it took men to do things. I believe that Hartsell was about as true-hearted a man as I ever knew.

He was only 42 years of age, just getting into the prime of life. He was taken with angina and passed away in a very few hours. Some of us have been in the work a long time and go on, and others are cut off. Sometimes we think—oh, we don't know—and we wonder why those things happen—of course we leave that to the Ruler of all things, but I think of them so often that men just starting in on very great work—and in this case it looked as though he had one of the brightest futures of any man that I know of in North Carolina—are cut right off right in active life. Well, those things make us all think and should make us think because they come at a time that we least expect them.

DR. HERMAN GILBERT HEILIG

Dr. Herman Gilbert Heilig, 53 years of age, died suddenly at his home in Asheville, N. C., April 26th, 1931.

Dr. Heilig was a son of the late John G. and Mrs. Heilig, and a

grandson of the late Col. Paul N. Heilig of Salisbury. He was a descendant of one of the oldest and most prominent and highly respected families of his county. He was educated primarily at the local schools of Salisbury and, after finishing these, entered the University of North Carolina and, after completing the literary course, entered the School of Medicine from which he graduated with the degree of M.D. in the spring of 1899.

Not being satisfied with a medical degree from the University of North Carolina, he matriculated at the University of Maryland and graduated from that institution, after which he did post-graduate work at Johns Hopkins, Baltimore.

After doing general practice for a few years Dr. Heilig decided to do special work and he then took a course at the Post Graduate School of Medicine at New York, at the end of which he was given a certificate of recognition of the efficient work he had done in that institution. Returning to Salisbury, Dr. Heilig specialized in venereal diseases and was succeeding splendidly when he had the misfortune to fall and fracture his hip. This gave him much trouble and necessitated his giving up active work for some time. Later he resumed his practice and was quite successful in his chosen specialty. Only a few months prior to his death he decided to locate in Asheville, N. C., for the practice of his profession. He was succeeding splendidly in his newly chosen field, and was handicapped on account of ill health and a nervous breakdown.

Dr. Heilig was a most agreeable man, an able physician and had a large circle of friends in this city and community, and the news of his sudden death caused profound sorrow among all who knew him.

Dr. Heilig married Mrs. Elsie Newman Chandler of Orange County, Virginia, January 23rd, 1926, who, together with one brother and two sisters survive. He was taken to Salisbury and buried in Chestnut Hill Cemetery, funeral services being conducted by the Rev. Marshall Woodson, pastor of the First Presbyterian Church, of which church Dr. Heilig was long a member.

DR. ORRO M. HENDERSON

Dr. Orro M. Henderson, aged 35, died in a hospital at Ann Arbor, Michigan, July 29th, 1931, after an illness for more than a year.

Dr. Henderson was assistant to Dr. H. H. Briggs of Asheville for several years. She then left the city and was away until eighteen months prior to her death when she returned to Asheville.

Dr. Henderson was Dean of Anasthetics at the Los Angeles General Hospital for some time. She was brought to Asheville and buried in Riverside Cemetery. She leaves a mother and two sisters. She was unmarried.

DR. WILLIAM T. HOLT

William T. Holt, M.D., aged 77, died at his son's home in Greensboro, N. C., April 25th, 1931.

Dr. Holt's home was in the McLeansville section of Guilford County, where he had practiced medicine for twenty-seven years. He was

recognized as a splendid physician, a faithful churchman and a useful citizen, one who was exceptionally popular in his community. He was a dependable member of the Methodist church. The body was taken to the old homestead at McLeansville and buried from Mt. Pleasant Methodist Church.

Dr. Holt leaves a wife, formerly Miss Louizania Speas and seven children, one of whom is Dr. D. W. Holt of Greensboro.

IN MEMORIAM

By Dr. C. W. Banner

Dr. William Thomas Holt, well-known and beloved physician of McLeansville, passed away on the morning of the 25th day of April, 1931. The funeral services were held at 3 o'clock on the 26th day of April, 1931, from Mt. Pleasant Methodist Episcopal Church, six miles east of Greensboro, and were conducted by his pastor, Rev. R. C. Kirk, assisted by Rev. H. Grady Hardin, pastor of West Market Street Methodist Church in Greensboro. His body was laid to rest in the Mt. Pleasant church burying ground. Friends and former patients were active pallbearers, while members of the Guilford County Medical Society served as honorary pallbearers.

Dr. Holt was born in Alamance County on April 24th, 1854, he having died on the day following his birthday. About the last thing called to his attention were the beautiful flowers sent to him on his anniversary, and about noon on this day he lapsed into unconsciousness and remained in that condition until the end came peacefully on the 25th of April, 1931.

Dr. Holt was twice married, his first wife being Mrs. Ella Poindexter, of Yadkin County, who died in 1888. In 1890 he was married to Miss Louizania Speas, of Yadkin County, who survives, together with the following children: Dr. D. W. Holt, Bryce R. Holt, Miss Myrtle Holt and Mrs. R. L. Donnell, Greensboro; A. Bascom Holt, McLeansville; Mrs. Edward L. Davis, Charlotte, and William S. Holt, Lynchburg, Va., also four grandchildren. Surviving also are two sisters, Miss Julia Holt and Mrs. Louisa Rutledge, both of Yadkinville.

When he was a small lad Dr. Holt's parents moved from Alamance County to Yadkinville, where he resided for many years. After attending the public schools he entered Oak Ridge Institute, later graduating from the University of Tennessee. He graduated in medicine from the College of Physicians and Surgeons at Baltimore, Md., and took a post graduate course at Polyclinic Hospital in Philadelphia. He began the practice of medicine at Donnaha, Forsyth County, remaining there until 1904, when he removed to McLeansville, where he was actively engaged as a general practitioner for 27 years.

In October, 1930, his health began to fail and in November he went to Philadelphia for treatment, remaining there for some weeks, and after his return had been at the home of his son, Dr. D. W. Holt, where he was under the care of several local physicians. Although his condition had been gradually getting worse for sometime, the change came suddenly about noon on the 24th of April, 1931.

Dr. Holt was a true physician, of the family doctor type, and the interest of those whom he had served so faithfully for years in his community evidenced the esteem in which he was held. In scores of homes throughout the community his death was felt as a personal loss. Although he served as physician, confidant, advisor, and friend, he found time to keep abreast of the progress in the science of medicine and not only gave much study to medical books, but attended clinics to observe the progress and to equip himself for a still larger measure of service as a general practitioner. At the time of his death, neighbors recalled that he was ever ready to answer the call to relieve suffering and to alleviate pain, no matter what the weather, the hour of night, or the strain upon his physical condition. He was beloved and esteemed as a true and loyal friend and neighbor as well as physician through the community in which he had labored for more than a quarter of a century.

Dr. Holt always showed keen interest in community development, especially in schools and roads. He assisted in selecting the site upon which the commodious consolidated school at McLeansville now stands and he was always interested in the boys and girls of his community and in seeing that adequate educational advantages were afforded them. He was just as much a champion of good roads, holding that educational progress was to a large extent linked up with adequate all-weather highways. He was an active member of Mount Pleasant M. E. Church in which he had for a number of years served as trustee.

Dr. Holt was a staunch supporter of Duke University and had often expressed himself as grateful that he had lived to see all his boys complete courses there. He was especially interested in the establishment of the medical school at Duke, and only a short time before he became ill, visited the university and was shown over the medical college buildings, then in course of construction.

Dr. Holt, reserved in his way and making no attempt at show, was a *true* gentleman. No trumpets proclaimed his deeds, but his heart and hands acted in response to the noble impulses within, and his life was spent in going about doing good. The dust of those we loved is not all that is left with us; the memory of the kind deeds and the loving presence in the past of our deceased brother shall ever remain with us a sweet aroma until our dust rests in the keeping of earth's bosom.

DR. JOHN ROBINSON IRWIN

Dr. John R. Irwin, aged 78 years, died at his home in Myers' Park, Charlotte, North Carolina, June 28th, 1931, death being caused by a sudden heart attack.

Stalwart in physical being as he was in character, Dr. Irwin had been in his customary good health until a few weeks prior to his death when he suffered a heart attack from which he later rallied. Another attack confined him to his bed and he was thought to be getting better, until he was stricken suddenly.

The physician and Christian citizen was conscious until the end, his characteristically amiable nature serving to comfort those whom he loved best.

Dr. Irwin was one of the best known physicians and surgeons in North Carolina and in the entire southeast, his medical life of 54 years having been spent in active practice in his city and county. As the former head of the North Carolina Medical Society, and member of the national association, he was alert to the growth of the science of medicine and was a factor in its development in his section until the last. Old and young knew Dr. Irwin, and admired his many personal attributes and gentility of character. He combined principles of Christianity in his ministrations of the sick and suffering and was looked upon as a true friend in time of trouble.

Dr. Irwin was born at the Irwin plantation December 29, 1853. He was educated successively in the Johnson School for Boys at Mill Hill, at Poplar Tent Academy, at the Griffith School in Charlotte, and attended Davidson College. After two years of medical study under Dr. J. McKnitt Henderson, he entered the University of Maryland School of Medicine in 1875 and received his degree from that institution in 1877. For one year he was clinical assistant in the University Hospital in Baltimore.

In 1879 he was married to Miss Margaret Henrietta Henderson, who survives him. In February, 1929, Dr. and Mrs. Irwin celebrated their golden wedding anniversary.

Dr. Irwin began his practice at Croft but after a few years moved to Charlotte from which city his reputation as a specialist in gynecology and abdominal surgery spread over the state.

In 1902 he became one of the faculty of the old North Carolina Medical College in Charlotte and for several years filled the chair of gynecology and abdominal surgery. For a long time he was a member and vice-president of the board of trustees of Charlotte College for Women, later Queens College, and was also a trustee of Davidson College.

He exercised much influence over the medical profession through his activities in various medical societies, including the Mecklenburg County, Ninth District, State, Tri-State, Southern and American Medical Societies. He appeared before these organizations many times in the discussion of professional and technical subjects.

Dr. Irwin was one of the founders of the Presbyterian Hospital in Charlotte. He was a graduate of Davidson and of the University of Maryland. Dr. Irwin was an elder in the Second Presbyterian Church, of which he was long a member.

DR. JOHN ROBINSON IRWIN
1853-1931

By Dr. R. L. Gibbon, Charlotte, N. C.

An acquaintance and friendship extending over many years is my sole qualification for the sad task of writing this memorial and appreciation of my late friend, Dr. John R. Irwin of Charlotte. The abbreviated data to be found in the Medical Directory of the American Medical Association would inform us that he was born prior to the

Civil War, in the year 1853; that he was educated at Davidson College, N. C., and received his medical degree from the Maryland Medical College in 1877. From this it is apparent that he belonged to that fast diminishing group of men whose professional lives began in what we would now regard as a relatively primitive period in medicine, but whose characters and labors must ever command our admiration and esteem. On the other hand, his professional career covers a time when medical and other sciences have made greater advance than in the previous hundred and fifty or two hundred years. Some contend that this comparison should be made with the previous thousand years. At any rate, he was contemporary with a period of marvelous physical, scientific and social achievements. To have lived in this period of history is to have existed in the midst of constant and rapid change in thought and environment. Happy the individual who amidst such shifting scenes could retain his equilibrium and avoid the maladjustments that is one of the world troubles today.

Up to 1894 Dr. Irwin practiced in the northern part of Mecklenburg, where for years he was known to have had one of the largest country clienteles in the state. Moving to Charlotte in the prime of his life and the fullness of his medical experience, he quickly attained eminence in his new surroundings.

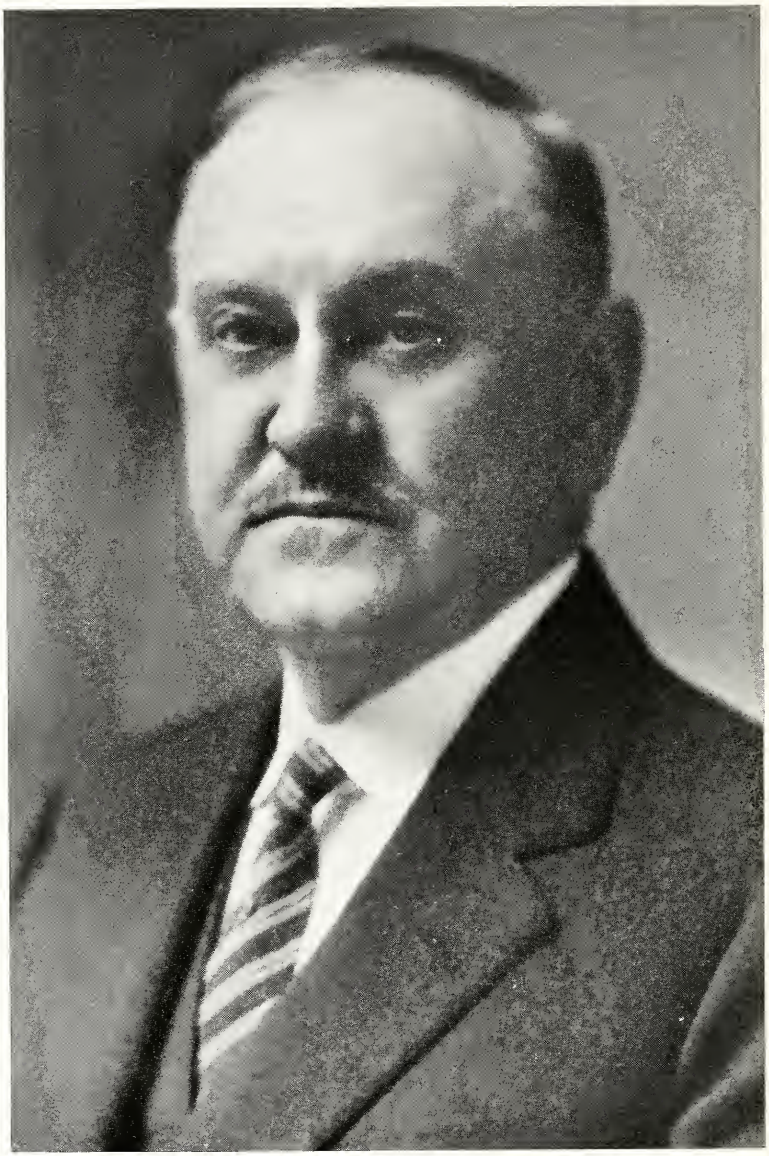
It was in this period that the profession became greatly interested in the modern hospital; the trained nurse began to make her appearance outside of the great centers, and the X-ray was entering the field with all its wonderful possibilities. These and numerous other additions to our weapons in the fight against disease received prompt recognition by our friend who became active in the organization of a private hospital, an institution which later became the Presbyterian Hospital of Charlotte. The first clinical use of the X-ray, in our part of the state at least, was largely through his initiation. The case was historical and has been made a matter of record.

Some years later the North Carolina Medical College was moved from Davidson College to Charlotte and Dr. Irwin for several years held the chair of gynecology. As teacher and lecturer he was meticulous in his preparation for the task before him and systematic in the treatment of his subject.

While in no sense an office-seeker nor a politician, he held various appointive and elective offices in the local and state society, and it is characteristic of him that the duties of such positions always received his earnest attention.

Another of his outstanding traits was what amounted almost to a passion for promptness. He was seldom or never late for an appointment or a consultation, and in this respect was a refutation of the prevailing idea among both laymen and the profession that a doctor, because of the irregularities of his calling, cannot be trusted to meet an engagement on time.

Of tall and commanding presence, Dr. Irwin was of robust health and during his long and active life was seldom heard to complain of even minor ailments, but some months before his death certain ominous signs appeared, that to him, though he said nothing about it, must too



DR. JOHN ROBINSON IRWIN

surely have indicated that the magnificent physique that so sturdily had withstood the strain and stress of nearly four score years, was at last beginning to disintegrate.

It was the writer's privilege to assist in whatever way possible, during the last and acute phase of his illness and I was impressed by the absence of fear or anxiety of any kind, despite his mental alertness up to a few hours of his death.

Fortunate in a long and active life, he was equally blest in his death, being spared a painful and protracted sickness. The end came rather abruptly on June 28, 1931.

DR. JOHN ROBINSON IRWIN

By Dr. M. R. Adams

Dr. John Robinson Irwin was born on the Irwin plantation in Mecklenburg County, December 29, 1853, and passed away June 28, 1931, after being in active practice of medicine and surgery for fifty-four years. His long and useful career was spent in his native county, Mecklenburg, and Charlotte. He had been in his customary health and in active practice until a short time prior to his death when a fatal heart attack ended his brilliant career.

Dr. Irwin was descended from an illustrous ancestry—Irwin on the paternal side and Rev. Dr. John Robinson, a celebrated Presbyterian divine, on the maternal side. He had all the facilities of a good education, having completed the course in the primary schools he took his collegiate course at Davidson College and his medical course at the University of Maryland, graduating in 1877. After getting his degree he located at Croft near Charlotte, but soon thereafter located in Charlotte and in a short while commanded a large practice in medicine and surgery. During his active work he was an important factor in his chosen profession, and was one of the most prominent physicians in his community as well as the entire state and was always alert to the growth of medicine and surgery.

Dr. Irwin was one of the founders of the Presbyterian Hospital which was the first to be established in Charlotte, and he always took much interest in the institution.

Dr. Irwin was a man of strong character and personality and on account of his genteel disposition and mannerism he was loved and respected by all classes. He was not only prominent as a physician in his community but active in the religious world, being an elder in the Second Presbyterian Church of which he was a long and consistent member.

He was happily married to Miss Margaret Henderson in 1879 who survives him.

It was my privilege to know him well and intimately, and he was my ideal of a man, a doctor, and a Christian gentleman. May peace be to his memory.

Dr. D. A. Garrison (Gastonia): May I say one word about Dr. Irwin? Not enough is said about him there. He was a man of wonderful ability in meeting the people. He was not only a physician but the surroundings were all looked over when he came in to a home. He

looked around the home to see if there was any malaria or any unusual condition there.

When he was practicing in the country—that was four miles from my home—he was in our home occasionally. There wasn't much sickness in our home because there were eleven of us, and we didn't get enough to eat to make us sick in those days. However, he was our family physician for a number of years. He came out to Charlotte occasionally when there was anything serious.

He was a man I always admired, a man who was open and above board for everything that was a betterment and for the uplifting of the community. I must say he was a good farmer with it while he was out there and made about half of his living at that, because he didn't get so much out of riding over the country, but he had good horses and he rode horseback for years and years over that country. I think he practiced there for 12 or 14 years and then moved into the city of Charlotte where he made quite a success in his work.

DR. T. A. KIRKMAN

Dr. T. A. Kirkman, aged 71, died at his home in Siler City, N. C., May 24th, 1931, after a lengthy illness.

Dr. Kirkman had been a practicing physician for forty years. About five years ago he was in a serious automobile wreck and had been an invalid since that time. He is survived by one son and four daughters.

DR. A. A. MAYNARD

Dr. A. A. Maynard, 73 years of age, died in a hospital at Fayetteville, N. C., April 4th, 1932. He had been ill several years and was finally taken to the hospital with a hope that something might be done to restore his broken health.

Dr. Maynard's home was at Harrell's Store in Sampson County. He was a native of Wake County, being reared near Apex. He practiced medicine for many years at Wadesboro, N. C., before removing to Sampson County. He was the father of Lieut. Belvin W. Maynard, the famous "flying parson." Belvin was the first man to fly across the American continent.

Dr. Maynard's wife, formerly Miss Anna Elizabeth Liles of Anson County, and ten children survive him.

DR. ROSCO MANSER

Dr. Roscoe Manser died July 3, 1931, at Walter Reid Hospital, Washington, D. C., where he had been taken for treatment.

Dr. Manser had practiced medicine in Hickory, N. C., about six months before his health gave way. He is survived by his widow and one daughter, also both of his parents.

DR. PETER McLEAN

Dr. Peter McLean, aged 51 years, died at his home in Laurinburg after a short illness of pneumonia.

Dr. McLean was the only son of the late Hector McLean and Eliza Patterson McLean. He was the grandson of Dr. Angus D. McLean, pioneer physician and one of the first of the McLeans of Scotland and Robeson counties. He was also a grandson of Dr. Archibald Patterson, a prominent physician of Scotland County.

He studied at Davidson College and at the University of North Carolina and completed his medical course at the University of Maryland. He began the practice of medicine at Laurinburg in 1906 and was associated with the late Dr. D. W. Prince. In 1910 he was married to Miss Alice Lee Elliott who survives him.

DR. EDWARD RANDOLPH MICHAUX

Dr. E. R. Michaux, aged . . ., died at his home in Greensboro, N. C., December 2, 1931.

Dr. Michaux had been in failing health for several months and his condition had been critical for the last three weeks. He had practiced medicine in Greensboro more than a half century. It was while employed as a drug clerk that he became interested in the profession of medicine and he was later graduated in medicine from the University of the City of New York. Subsequently he did post-graduate work at this institution, and from time to time took post-graduate courses at the Post-Graduate School of Medicine of New York.

The unusual skill of the surgeon and the lovable personality of the man endeared Dr. Michaux to his many friends.

For many years Dr. Michaux was surgeon for the Southern Railway and the Atlantic and Yadkin Railroad and served in this capacity until his death. He was a member of the Guilford County, District, Tri-State, Southern and North Carolina Medical Associations.

His widow, who was formerly Miss Cornelia Robertson, survives him.

DR. WILLIAM F. MITCHELL

Dr. William F. Mitchell, aged 64, a veteran physician, died of a heart attack at his home at Shelby, N. C., October 27, 1931.

Dr. Mitchell graduated in medicine from the University of Maryland, Class of 1889. He was formerly a member of the County Board of Health and was past president of the Cleveland County Medical Society. He is survived by his wife and two sons, one of whom is a physician, Dr. Tom Brice Mitchell of Shelby.

DR. EDWIN GIBBONS MOORE

Dr. E. G. Moore, aged 69 years, died of hemiplegia at his home in Elm City, North Carolina, October 6, 1931.

Dr. Moore was a most excellent man, a lovable character, a learned physician and his place will be hard to fill in the ranks of the medical profession of the State of North Carolina.

For 48 years he had practiced medicine in Elm City, beginning the practice after he had graduated in medicine at the University of Maryland in 1883. From the first he won the people of his adopted home and in all the long years of practice was beloved and honored by a constantly widening circle of patients and friends. As a physician he stood high among the leaders of his section, having broadened his education by post-graduate work in the New York Polyclinic. Honors came to him from the medical profession which he graced, having served as president of the Wilson County, Tri-State and the Fourth District Medical Society, and as a member of the State Medical Examining Board, and of the Association of Surgeons of the Atlantic Coast Line Railway. He was a director of the Hospitals for the Insane at Goldsboro. It was in the sick chamber that he shone best. To skill and courtesy he added sympathy and friendliness. Attesting the affection of many, and scores who had been benefitted by his treatment paid grateful tributes and sorrowed at his funeral.

Dr. Moore had natural gifts as an orator, combining eloquence in manner and rich style with lofty sentiment. He was often in demand as speaker at medical and civic and religious gatherings. His splendid address on Lee before the John W. Dunham Chapter of the Daughters of the Confederacy in Wilson has been preserved and was the high-water mark of his eloquence.

Dr. Moore from early youth was deeply religious. He was a member of the Methodist Church, serving as steward and as superintendent of Sunday School and delegate to the conference of his church. Every preacher of his own and other churches regarded him as a friend and relied upon his counsel and aid in all good movements.

As a citizen, he was public-spirited and progressive. Dr. Moore measured up to the highest standard of his profession and to his own high ideals of Christian living. His town and county and state are poorer now that he has gone.

IN MEMORIAM

DR. EDWIN GIBBONS MOORE

As the soft-toned bells tolled in the tower of Trinity College, now Duke University, from which he had graduated in 1880, the body of Dr. Edwin Gibbons Moore was laid to rest in God's acre in Elm City on October 7. For 48 years he had practiced medicine in Elm City, beginning the practice, after teaching one year at Ridgeway, after he had graduated in medicine at the University of Maryland in 1883. From the first he won the people of his adopted home and in all the long years of practice was beloved and honored by a constantly widening circle of patients and friends. As a physician he stood high among the leaders of his section, having broadened his education by post-graduate work in the New York Polyclinic. Honors came to him from the medical profession which he graced, having served as president of the Wilson County, Tri-State and the Fourth District Medical Society, and as a member of the State Medical Examining Board, and of the Association

DR. E. G. MOORE

of Surgeons of the Atlantic Coast Line Railway. He was a director of the Hospitals for the Insane at Goldsboro and Raleigh. It was in the sick chamber that he shone best. To skill and courtesy he added sympathy and friendliness. Attesting the affection of many, scores who have been benefitted by his treatment paid grateful tributes and sorrowed at his funeral.

Dr. Moore had natural gifts as an orator, combining eloquence in manner and rich style and lofty sentiment. He was often in demand as speaker at medical and civic and religious gatherings. His splendid address on Lee before the John W. Dunham Chapter of the Daughters of the Confederacy in Wilson has been preserved and was the highwater mark of his eloquence.

From early youth Dr. Moore was deeply religious. He was a member of the Methodist Church, serving as steward and as superintendent of Sunday school and delegate to the conference of his church. Every preacher of his own and other churches regarded him as a friend and relied upon his counsel and aid in all good movements.

As a citizen, he was public-spirited and progressive. He was the leader in securing waterworks in his town, in the sewer and lighting system and in the enlargement of the public school system, and was interested in business houses and whatever made for the prosperity of the community. He was devoted to the soil, owned large plantations and initiated better methods of farming. There was no line of activity or business in Elm City that he did not advance. He was a good and far-sighted business man, loved flowers and all of out-door. His beautiful and spacious residence was the centre of genuine hospitality.

Dr. Moore was twice married, his first wife being Miss Annie M. Thompson, of Goldsboro. His second wife, who survives him, was prior to her marriage, Miss Ursula Daniel, of Halifax. He leaves two children by his first marriage, John Craven, who was educated at Trinity Park High School and the University of North Carolina, where he graduated in pharmacy, and Lucile Robey Moore, who graduated at Peace Institute in Raleigh, and was later a teacher in science in that institution.

Dr. Moore measured up to the highest standard of his profession and to his own high ideals of Christian living. His town and county and state are poorer now that he is gone.—A Friend.

DR. E. G. MOORE

By L. B. McBrayer

Dr. Moore was one of God's noblemen. He was an Honorary Fellow of this Society and right worthily was this honor bestowed upon him and thrice worthily and nobly did he wear this distinction. He never sought preferment at the hands of his professional brethren, yet many honors came to him, because it was apparent to all that he was an influential, outstanding member of our profession and an able, honorable, conscientious leader.

For a number of years he was chairman of the obituary committee, under the auspices of which committee we are now paying our tribute

to our friend and confrere. Upon his voluntary retirement from this committee, he did not lose interest, but was always present at these memorial services and only last year, in a similar service to this, he paid his tribute of love and devotion to his friends, Dr. Cyrus Thompson and Dr. Wm. E. Warren.

God will rest thee my friend, our friend. When your beautiful soul winged its flight to God who gave it, you were ushered into the presence of the Great Physician, with whom and for whom you had labored during its tenancy of your mortal body. You were no stranger there for you had been working together with God in performing the works for which He sent you, and methinks that when you entered that eternal city there was rejoicing among the angels and your many friends who had gone before and the Great Physician said, "Come ye blessed of my father, inherit the place prepared for you, for as much as ye did it unto all of the least of these my children, ye have done it unto me."

Farewell Edwin Gibbons Moore until we meet again.

DR. GEORGE BLYTHE MORRIS

Dr. George B. Morris, aged 47, died at Goldsboro, N. C., November 15, 1931. He was connected with the State Hospital for negro insane at Goldsboro and had been in failing health for some months.

Dr. Morris attended Hughes Academy at Chocowinity, after receiving his early schooling in the public schools in Goldsboro. He later attended the University of North Carolina where he studied medicine. He then attended the University of Maryland, graduating from that institution in the year 1910. He served a year with the state hospital before taking up general practice of his profession in Mount Olive. He gave them their first hospital where he spent about 12 years. He came back to his home town and did general practice for two years before joining the staff at the state hospital where he rendered valuable service. He also served in the army during the World War and was stationed at Camp Jackson in the Medical Corps.

He was not married.

DR. ROBERT W. PALMER

Robert W. Palmer, M.D., a prominent physician of Gulf, North Carolina, died at his home at that place, January 14th, 1932. He was 69 years of age and was the son of the late Dr. and Mrs. Arch W. Palmer, who lived at Deep River near Gulf.

Dr. Palmer had suffered with periodical attacks of the heart but only for a few days was he critically ill.

He was a graduate of Louisville Medical College and began the practice of medicine at Gulf where, for nearly a half century he was a skilled physician, friend and counsellor to his patients over a large territory. He was an active member of the Masonic order.

He is survived by his wife, nee Miss Edna Russell, and three sons and three daughters.

DR. WILLIAM DAVID PEMBERTON

Dr. W. D. Pemberton, 72 years of age, died at his home in Concord, N. C., September 9th, 1931, following a stroke of apoplexy.

Dr. Pemberton was dean of the medical profession in Cabarrus County where he had practiced since 1901. He was educated at Trinity College, the University of North Carolina and the University of Maryland. He practiced at Monroe ten years before locating in Concord. He leaves a widow, three daughters and two sons. He was a Mason and an Elk.

DR. JOHN A. PINNIX

Dr. John A. Pinnix, aged 85, died at his home in Yanceyville, N. C., August 29, 1931.

Dr. Pinnix was born in 1846, graduated from the College of Physicians and Surgeons in 1875, and practiced medicine continuously until his health failed some time ago.

Dr. Pinnix was a Confederate Veteran, having entered the army at the age of 16, and serving until paroled at Appomattox. He was a community and church leader and active in public affairs.

He is survived by his widow and one daughter, Mrs. Clay Murray, who made her home with her parents.

DR. E. A. PIERCE

Dr. E. A. Pierce, aged 70, died at Ocracoke, N. C., August 22nd, 1931. He was acting Assistant Surgeon for the Ocracoke, Hatteras and Portsmouth Coast Guard stations at the time of his death.

Dr. Pierce died at a local hospital, death resulting from pneumonia contracted after he had been rescued from an undertow in the surf at Ocracoke, where he had a narrow escape from drowning and was severely buffeted by the waves before he was pulled from the water. He is survived by three sons and two daughters.

DR. JOHN F. REED

Dr. John F. Reed, aged 63, died at his home in Concord, N. C., July 6th, 1931. One week prior to his death he suffered a severe attack of angina pectoris and gradually grew worse until his death.

Dr. Reed received his early education in local schools, after which he was a student at Bingham Military School, at Mebane.

He prepared himself for the medical profession at the University of Virginia and New York University, and following his graduation from the latter institution he served his interneship in a New York hospital and then for a period of seven years was associated with the health department of New York City in the capacity as school medical inspector, a position of importance and responsibility.

Upon the death of his father a number of years ago, he resigned his work with the New York health department and opened an office at Concord.

Dr. Reed was married on August 9, 1921, to Miss Mary Lewis Harris, of Concord, who survives.

DR. CHARLES ROBERSON

Charles Roberson, M.D., 59 years of age, a practicing physician in Greensboro for more than 30 years, died at his home in Greensboro September 2, 1931, of an attack of angina pectoris. His wife, who was formerly Miss Mabel M. Hill of Greensboro, preceded him in death about two years.

Dr. Roberson was born on the old home plantation 10 miles west of Chapel Hill, in Orange County, in 1872, the son of Dr. Abner Benton Roberson and Cornelia Adeline Stone, representing a family of planters and professional people long and prominently identified with Orange County. His father was a physician in the Confederate army and his mother, now 84 years of age, still lives at Chapel Hill.

He was educated in Chapel Hill high school and the University of North Carolina.

He then entered Long Island College hospital at Brooklyn and graduated in 1897.

Following his graduation from the Brooklyn hospital, he practiced medicine for two years in his home community at Chapel Hill, coming in 1899 to Greensboro, where his attainments and work brought him a high position in the profession.

In 1917 Dr. Roberson gave up the burdens of his general practice and specialized in obstetrics and children's diseases. He frequently spent periods of studying at Lying-In and other New York hospitals.

Various honors came his way throughout his career. In 1915 he was president of the Guilford County Medical Society. He was a member of the North Carolina Medical Society, of the Tri-State Medical Association, consisting of the Carolinas and Virginia, and of the American Medical Association.

In the lodge and fraternity field, he was a Royal Arch and Knight Templar Mason, member of the Oasis Temple of the Mystic Shrine, and of the Benevolent and Protective Order of Elks. He was a member of the Merchants and Manufacturers' Club. He was a member of the First Baptist Church.

DR. FRANK ROBERTS

Dr. Frank Roberts, Marshville, N. C. Died, 1932.
No data.

DR. F. BOBO SCRUGGS

Dr. F. Bobo Scruggs, aged 38, died in a hospital at Shelby, N. C., July 26th, 1931.

Dr. Scruggs was beloved by the entire section where he was known. He was on the staff of the Shelby hospital and seven physicians from Shelby and six from Rutherford County attended as honorary pallbearers while twelve nurses, together with the superintendent and assistant superintendent from the Shelby hospital attended in uniform in a body. He was a shriner and a member of the Cliffside Baptist Church. He is survived by his wife, his parents and five brothers and seven sisters.

DR. G. T. SIKES

Dr. G. T. Sikes, a prominent physician and excellent citizen, died at his home in Youngsville, N. C., March 2nd, 1932.

Dr. Sikes was graduated from the University of Maryland in the year 1883. He was licensed by the State Board of Examiners in 1884 and joined the State Society the same year. In his society work, Dr. Sikes had been the recipient of many honors at the hands of his brother doctors, having served as treasurer of the State Medical Society, secretary of the Board of Medical Examiners, member of the legislative commission and commissions to redraft the medical constitution and by-laws, member of the House of Delegates and member of the Council of National Defense.

DR. RAY C. SINK

Dr. Ray C. Sink, aged 29 years, resident of Winston-Salem, North Carolina, was drowned at Virginia Beach, Virginia, August 20th, 1931.

DR. MANLEY ARPHEW SISK

Dr. M. A. Sisk, aged 34, was drowned at King's Park, Long Island, New York, October 20, 1931, while surf bathing at that place.

Dr. Sisk was a native of Guilford County, North Carolina, and at one time was associated with Glenwood Park sanatorium at Greensboro. He was brought to his mother's home at Pleasant Garden and was buried in the Pleasant Garden Cemetery. He is survived by his wife and his mother.

DR. L. C. SMITH

Lonnie C. Smith, M.D., aged 64, died suddenly at his home in Polkton, North Carolina, June 21st, 1931.

"Dr. Lonnie," as he was known to many friends and relatives in this section was a man of sterling worth, a splendid citizen and earnest church and civic worker. He taught his Bible class at the Methodist Sunday school as usual, complained of feeling ill, walked a short distance to his home and died in a short while. He was the last member of the family of the late Dr. D. M. Smith. Surviving are Mrs. L. C. Smith, one son, L. C. Smith, Jr., of Durham and three daughters.

DR. L. P. SOMMERS

Dr. L. P. Sommers, 67 years of age, a resident of New Castle, Wilkes County, died at a hospital in Statesville, N. C., April 16, 1932.

Dr. Sommers had resided at New Castle and practiced in Wilkes, Iredell, Alexander, Yadkin and Surry counties for forty-five years. His work and influence as an outstanding and beloved citizen extended throughout the whole community in which he lived. At one time he represented his district in the state senate.

Dr. Sommers is survived by his widow, who was Miss Minnie Dell Couch of Yadkin County, and one son and one daughter.

DR. IRA JAMES STONER

Dr. Ira J. Stoner, aged 62 years, died at his home in West Durham, June 22nd, 1931.

Dr. Stoner was graduated from the Memphis Medical College in the year 1898. He obtained license from the State Board of Medical Examiners in 1921 and joined the State Society in 1922. He is survived by his wife and two daughters.

DR. VIRGIL LEGGETT

Dr. Virgil Leggett, of Hobgood, N. C. Died at his home, 1932.
No data.

DR. H. P. P. THOMPSON

H. P. P. Thompson, M.D., a prominent physician of his community, died at his home at Highlands, North Carolina, June 30th, 1931, following a stroke of apoplexy which he suffered several weeks previous to his death.

Dr. Thompson was a son of Rev. W. T. Thompson, D.D. He leaves a widow, one brother, Rev. Toliver Thompson, and one sister, Mrs. J. D. Bridgers of Philadelphia. He was a native of Hancock, Maryland.

DR. GEORGE S. WATKINS

Dr. George S. Watkins, died at his home in Oxford, North Carolina, November 18th, 1931, after an extended illness.

Dr. Watkins was graduated in medicine from the University College of Medicine, Richmond, in the year 1900. He became a member of the Medical Society of the State of North Carolina in 1908. He was a native of Granville County and was prominent in the profession of his community, having been one of the founders of the Brantwood hospital in Oxford. He is survived by his widow, formerly Miss Willie Lee Nelson, and two daughters.

DR. HORACE N. WELLS

Dr. Horace N. Wells, of Murphy, North Carolina, died at his home at that place, 1932.
No data.

DR. L. D. WHARTON

Dr. L. D. Wharton, aged 62 years, died at his home in Smithfield, North Carolina, June 15th, 1931, of an unexpected heart attack.

Dr. Wharton was a graduate of Davidson College and of Tulane University, receiving his degree of Doctor of Medicine from that institution. He practiced for many years at Red Springs, North Carolina, but later located in Smithfield where he was prominent in professional and civic capacities. He was an elder in the Presbyterian Church for many years and was superintendent of the Sunday school of the First Presbyterian Church at Smithfield for thirty years.

Surviving Dr. Wharton are his widow, who was Miss Lillie Benton before marriage, and five sons.

DR. JOHN WESLEY WHITE

Dr. John Wesley White, aged 70, died at his home in Wilkesboro, North Carolina, January 12th, 1932.

Dr. White graduated from Jefferson Medical College in the year 1888. He was a charter member of the Wilkes County Medical Society and ex-president of that body. He was an honorary fellow in the Medical Society of the State of North Carolina and ex-vice president of that organization. He formerly operated the Wilkes Hospital and for the last ten years was health officer of Wilkes County. He died of myocarditis.

In the year 1898 he married Miss Pearl Snydor, who, together with a son and daughter, survive him.

Dr. White was known as a community builder, a strong champion of education and for a number of years was Chairman of the Board of Stewards of the Wilkesboro Methodist Church, of which board he was a member at the time of his death.

A TRIBUTE TO DR. JOHN WESLEY WHITE

By James H. McNeill, M.D.

Dr. John Wesley White, beloved civic leader of Wilkes County, was born in Hamptonville, N. C. on March 9, 1861. He died at his home in Wilkesboro on January 12, 1932.

Dr. White was gradutaed from Jefferson Medical College in 1888 and located for practice at Wilkesboro. At that time, there were no good roads, the surrounding country was practically a wilderness. So, we may look upon Dr. White as a medical pioneer, in fact, almost a medical missionary, for he was ever the friend of the poor. A patient's financial status did not influence the quality of attention that Dr. White gave him.

Our friend had a full, successful, useful life. In addition to his professional career, he was a true civic leader, always interested in improving the living conditions in his community. He served as mayor of Wilkesboro, served on the school board and on the Wilkesboro Board of Commissioners. During the last ten years of his life, he served as county health officer and carried out the duties of that office in an efficient kindly manner.

Soon after his arrival in Wilkes County, he realized that the facilities for taking care of very sick patients in the community were inadequate. He, therefore, established a small hospital where he performed efficiently many major operations and saved many lives. Ill health later forced him to close it.

At his death, Dr. White was not counted rich in worldly goods, but he had possessions far more valuable. He had the love, respect and gratitude of all who knew him.

May we hope that our own younger generation will produce men as careful, conscientious, able and kind? To us of the Wilkes County Medical Society, Dr. White is an ideal; one worthy of the closest emulation. When our time comes to leave this world of trial and strife, may

we be greeted, as he was, with God's words of approval: "Well done, my good and faithful servant."

DR. LAWRENCE BRANCH YOUNG

Dr. Lawrence B. Young, aged 72, died at his home in Rolesville, North Carolina, August 14th, 1931.

Dr. Young was a graduate of the College of Physicians and Surgeons of Baltimore in the Class of 1886. He died of chronic interstitial nephritis and uremia.

DR. C. C. ZIMMERMAN

Dr. C. C. Zimmerman, 45 years of age, died at Watts Hospital, Durham, North Carolina, March 15th, 1932.

Dr. Zimmerman came from Kansas City, Mo., in the year 1928, and has resided in Durham since that time.

DR. D. B. ZOLLICOFFER

Dr. Dallas Bancroft Zollicoffer, aged 79, died at his home at Weldon, North Carolina, November 23rd, 1931.

Dr. Zollicoffer was prominently known in the medical profession and church work. He was a member of the Medical Society of the State of North Carolina and of the Halifax County Medical Society. He was a graduate of the College of Physicians and Surgeons, Baltimore, in the class of 1881 and practiced continuously in Northampton County until the last couple of years, when he removed to Weldon. He died of a complication of troubles, uremia being the immediate cause of death.

In church work Dr. Zollicoffer was an outstanding character, having been, at one time, head of the layman's misisonary movement of the North Carolina Conference of the Methodist Episcopal Church South. He was lay leader of the local church until his death. He was thrice married. His last wife, who was Miss Irene Baker of Smithfield, and eight children survive him.

DR. DALLAS BANCROFT ZOLLICOFFER

By Dr. W. G. Suiter, Weldon

Dr. Dallas Bancroft Zollicoffer, son of Mary Hawkins and Jerome B. Zollicoffer, was born in Halifax County, near Weldon, N. C., March 17th, 1852. He was graduated in Medicine at the University of Maryland at the age of twenty-one years and began practice in Northampton County where he continued until the time of his death.

Dr. Zollicoffer was widely known throughout the State both in the medical profession and church work. Until recent years, he was a member of the North Carolina Medical Association and the Halifax County Medical Association.

In church work, at one time, he was head of the Layman's Missionary Movement of the North Carolina Conference of the Methodist Episcopal Church. He was lay leader in the Weldon Church until his

death November 23, 1931, at that time being the age of seventy-nine years.

Dr. Zollicoffer was married three times, first to Miss Nannie Joyner of Garysburg, then to Miss Katherine Thomas of Northampton County and third to Miss Irene Baker of Smithfield, N. C.

Surviving him are Mrs. Irene Baker Zollicoffer, and ten children, Mrs. W. B. Fitzhugh, Mr. J. B. Zollicoffer, Master Marion Baker and little Miss Eleanor Holland Zollicoffer of Weldon, N. C.; Mrs. Earl W. White, Norfolk, Va.; Mrs. E. C. Morrissette, Newport News, Va.; Mr. E. T. Zollicoffer, Baltimore, Md.; Mrs. J. F. West and Mr. A. C. Zollicoffer, Roanoke Rapids, N. C., and Mrs. H. R. Kyser, Thomasville, N. C.

No more fitting tribute could be paid his memory than that expressed on the occasion of his death, by an editorial in the Roanoke Rapids *Herald,* which I herewith quote:

"In the passing of Dr. Dallas Bancroft Zollicoffer, Halifax County has lost one of its finest old citizens. For nearly sixty years he has practiced medicine in this county and Northampton. He was one of the last of that noble body of men whose lives were dedicated to serving the mental and physical ills of their fellows, who performed their deeds of sacrifice against great odds, who traveled the muddy roads on rainy nights in freezing weather to some outlying district where there was pain and suffering to be alleviated: the country doctor.

"Raise your statues of marble to your warriors; sing the praises of your statesmen and rulers; acclaim the deeds of prowess of your athletes and airmen; fill the pages of history with all the records of your heroes; theirs is but fleeting fame compared to that of the old country doctor, whose memory is burned as if with a searing iron in the hearts of the people of the land whom they have served so faithfully and lovingly.

"Their kind are rapidly passing to their just reward but we of the younger generation will keep alive their memory for the next half century.

"Dr. Zollicoffer was a physician in the fullest sense, for he not only healed bodies and minds, he also brought comfort and rest to many a weary heart. No ordained minister could bring a message of the Great Physician with greater zeal and eloquence than this same country doctor. As the years passed him by and strong hands began to tremble, he turned more and more to the Great Medical Journal and probing those pages he would be young again, young enough to be imbued with the desire to pass on to those around him the Eternal Truths he found therein.

"Never desiring to be a great doctor nor a famous preacher, he went his simple way each day, a fine, upstanding, quiet, lovable, Christian Southern gentleman, whom we all will miss and to whose family and near ones, a grieving populace sends heartfelt sympathy."

We, the doctors of a younger generation in Halifax and Northampton counties feel blessed that we were permitted to live under the good influences of this noble character and we shall continue to honor his memory by attempting to emulate his virtues.

THIRD GENERAL SESSION

WEDNESDAY MORNING, APRIL 20, 1932

The Third General Session of the Medical Society of the State of North Carolina convened in Lecture Room "A" of the Robert E. Lee Hotel, Winston-Salem, North Carolina, at 11:45 A.M., Dr. M. L. Stevens of Asheville, President of the Society, presiding.

Nominations for the State Board of Medical Examiners were then made as follows:

Ben F. Royal	2nd District
Ben J. Lawrence	6th District
Chas. A. Woodward	4th District
W. W. Green	4th District
W. H. Smith	4th District
H. D. Walker	1st District
R. B. Davis	8th District
J. W. Tankersley	8th District
F. Webb Griffith	10th District
R. L. Pittman	5th District
J. M. Northington	7th District
K. G. Averitt	5th District
Roy Tatum	9th District
J. R. Terry	9th District
Hamilton W. McKay	7th District
J. W. Vernon	9th District

Nominations for one member of the State Board of Health for a term of 3 years.

Dr. K. P. B. Bonner: Mr. President, in any body, any executive body, having to transact business, harmony is a very essential requirement. We all realize the importance of that in view of recent happenings. On that account I take great pleasure in nominating Dr. Grady Dixon of Ayden, who is now working satisfactorily with the Board, to succeed himself.

Dr. L. A. Crowell (Lincolnton): I second the nomination.

Dr. K. P. B. Bonner: If there are no further nominations to fill the vacancy on the Board of Health, I move you, sir, that the election be made by acclamation.

. . . The motion was seconded. . . .

President Stevens: You have heard the motion that inasmuch as there is only one candidate proposed for the vacancy on the State Board of Health that his election be made by acclamation. All in favor of the election of Dr. Grady Dixon by acclamation to fill the office of member of the State Board of Health please say "aye"; those opposed "no." It is carried and Dr. Grady G. Dixon is unanimously elected for a term of 3 years.

If there is no further business to come before this session we will stand adjourned.

. . . Thereupon the Third General Session of the Society adjourned at 12:15 o'clock to meet again at 2 P.M. for the purpose of balloting

for members of the State Board of Medical Examiners, until the 7 are elected, each for a term of 6 years, and for the continuation of the scientific program as per program. . . .

FOURTH GENERAL SESSION

WEDNESDAY AFTERNOON, APRIL 20, 1932

The Fourth General Session of the Medical Society of the State of North Carolina convened in the Robert E. Lee Hotel, Lecture Room "A," Winston-Salem, North Carolina, at two o'clock, Dr. M. L. Stevens, President of the Society, presiding.

President Stevens: The Secretary has an announcement to make with reference to the balloting.

Secretary McBrayer: For the information of those who have your ballots and those of you who will get them in one minute, I would like to call your attention to an error. On the ballot here is "J. M. Worthington" of the 7th district. We didn't have time to read proof on this. I know, whether anybody else does or not, who was meant, one J. M. Northington, and I would like to have permission to have it understood that "J. M. Worthington" as it appears on the ticket is J. M. Northington. Is that all right, Doctor Northington?

Dr. J. M. Northington: Yes, that is satisfactory to me.

Secretary McBrayer: Dr. Northington says it is all right.

One other thing I want to say: As long as we have such a delightfully large number registered, I would be glad if anyone who has not registered down at the desk, would do so before they leave.

President Stevens: I desire to appoint as Tellers of Election: Dr. John Q. Myers, Dr. V. M. Hicks, Dr. K. P. B. Bonner, Dr. H. B. Ivey, Dr. J. K. Pepper, Dr. R. L. Carlton, Dr. K. B. Pace, Dr. R. S. McElwee, Dr. C. C. Orr.

We would be glad to have these gentlemen come forward and get a supply of ballots and distribute them throughout the house.

. . . The Tellers then distributed the ballots. . . .

Secretary McBrayer: The President requests me to say that you will vote for seven. You will find that information at the top of the ticket. One of the Tellers says if there are more than seven voted for, your ballot will be thrown out. Vote for seven. The Tellers say they are going to make quick work of this.

As soon as the ballot is closed the Tellers will retire to some room that suits their convenience and count the ballots and then come back and report. In the meantime the Scientific program will proceed here.

President Stevens: The ballot is now closed.

Secretary McBrayer: The President has closed the ballot and instructed the Tellers to retire and count them.

President Stevens: While waiting for the ballots to be counted, we will proceed with our program.

The first address on the program will be "Radiotherapeutic Abortion" by Dr. J. P. Rousseau of Winston-Salem.

"RADIOTHERAPEUTIC ABORTION—WITH REPORT OF CASES"

By J. P. Rousseau, M.D., Winston-Salem

In presenting this subject for discussion, we realize that it is one in which our present knowledge does not justify any final conclusions. We presented at the meeting of the Radiological Society in Greensboro, January 19th, a preliminary report of cases and a brief discussion of this subject. Since that time we have had some new cases for study, and a further follow up record of the cases previously reported have brought out a few additional facts. Realizing that our series of cases is still small and the time of observation is short, we wish to present the subject before this society only as a preliminary report for the purpose of stimulating interest and further study of a therapeutic procedure, which we feel is of distinct usefulness in certain selected cases.

Habitual conservatism among professional men is a well known and often valuable characteristic. But the ultra-conservative attitude, so often prevalent among medical men, is at times harmful, in that it impedes progress. When new ideas are presented, they require repeated iteration and reiteration in order to attain even momentary attention. Such has been the history of radiotherapy, about which many physicians are today, just opening and rubbing their eyes after a quarter of a century of sleep.

Historical: It was but a short time after the discovery of the X-ray by Roentgen in 1895 that the fact was established that certain doses of ray applied to the pregnant uterus would cause mental and physical defects in the growing embryo, and frequently in larger doses destruction and death of the embryo. Today it is felt that the death of the fetus after ray exposure is due to destruction of the very sensitive glandular structures of the fetus. The dose of ray necessary to cause the death of the fetus in the early months of pregnancy is well known and can be safely applied to all patients. This fact, though known for many years, was not used for therapeutic purposes until recently. In reviewing the literature on radiotherapeutic abortion, we find practically nothing of importance prior to the publication of an excellent monograph on this subject by Dr. Micheal Stern of New York. His article appearing in the *American Journal Roentgenology,* February, 1928, page 133, presents a detailed discussion and report of 31 case histories of patients aborted by him. Since that time nothing has appeared of much value in the American literature on this subject. Prior to the publication of Stern's work, therapeutic abortion had been the exclusive heritage of the surgeon. But here, as in other fields, radiation abortion will at least partially replace surgical methods.

Doctor Stern in tabulating the results in his 31 cases found that there were 26 complete successes, 3 partial successes and 2 failures. In the 26 successes, the fetus died and was spontaneously expelled on an average of 14 to 42 days after treatment. One case went 128 days before expulsion. In the 3 partial successes, the treatment caused the death of the fetus, but the uterus was emptied by surgical means, before sufficient time elapsed for spontaneous expulsion. He feels that if

more time had been allowed in these 3 cases, they too would have been complete successes. It is at times quite difficult to persuade these patients to wait for spontaneous expulsion.

Dr. Stern's conclusions from careful observation of his 31 cases are as follows:

1: That radiation induction of abortion can be safely used and with success in as much as 3½ months pregnancies.

2: That the administration of the required dose of X-ray caused only slight discomfort and no shock in any of his cases.

3: That the time elapsing between the treatment and expulsion of the fetus, was in most cases between 14 and 42 days.

4: That this elapse of time was in no way related to the duration of the pregnancy.

5: That at time of the spontaneous expulsion of the fetus there was but slight discomfort and a very scanty loss of blood.

6: That castration symptoms in his patients were generally milder than in patients castrated for other pelvic disorders.

7: That the fetus and membranes were usually expelled intact in the sac.

8: If one can establish beyond a doubt, that the fetus has died a few weeks after the treatment, one may wait indefinitely for expulsion of the fetus, if there are no urgent symptoms present in the patient.

Indications: That therapeutic abortion is frequently imperative, is of course, admitted by everyone. There are many women suffering from various chronic diseases, in whom abortion must be done, and to whom future pregnancy must be forbidden. The most common conditions requiring premature termination of pregnancy in the early months are, severe cardiac, renal, and Basedow's disease. Severe anemias, hypertension, gross pelvis deformities, epilepsy, insanity, tuberculosis, very large fibroids and malignancies of the birth canal. In all of these conditions surgery is necessarily hazardous.

These patients are invalids from one cause or another, and are for this reason poor surgical risks. In that a surgical abortion becomes a major operative procedure, and too frequently terminates fatally. The probability of inducing permanent sterility in these cases is no contraindication to the use of X-ray, but is a condition to be desired rather than avoided. Herein lies the main advantages of radiation over surgical procedures. It is our belief, therefore, that the induction of abortion by radiation is the method of choice in many of these cases:

1: Because it is not associated with or followed by any grave risks to the patient, as is surgical abortion.

2: Because it does not necessitate anaesthesia, hospitalization nor instrumentation.

3: Because there is a minimum of pain, shock and hemorrhage at time of treatment and at the time of expulsion of the fetus.

4: Because these patients are sterilized at least, for sometime to come, if not permanently. This last feature is of course of paramount importance in these patients. It cannot be accomplished by surgical abortion, nor is there any other satisfactory method known to prevent

pregnancy, except bilateral ligation of the tubes in the female and vasectomy in the male.

The technique of radiation abortion: The technique which we have employed is quite simple and can readily be applied by anyone familiar with the physics of radiation dosage. The treatment may be given at one sitting or divided into fractions of the whole and given over a period of ten days or two weeks. We employ 150 K.V., 5 M.A., 40 centimeters distance, 1/4 Mm. copper and 1 Mm. Al., giving 90% of skin erythema dose through two portals of entry, one anterior and one posterior over the pelvic organs. This is approximately a 40% depth dose to the ovaries. This depth dose, of course, depends to a certain extent on the thickness of the patient's abdominal wall.

The following brief case histories of our patients treated in this way will, I hope, serve to illustrate the excellent results which may be obtained in these otherwise difficult cases.

Case 1: Mrs. L. S. S., 32, white. Three previous pregnancies. One surgical abortion in 1929 due to hypertension and chronic nephritis. Advised to avoid future pregnancies. Referred by Drs. Valk and Jones, March 8, 1930. Duration of pregnancy, 3 months. Marked hypertension and nephritis. Complete treatment at first visit. Spontaneous expulsion of fetus on April 8, 1930, intact, 28 days after treatment. No appreciable bleeding, and slight abdominal cramps. Complete amenorrhea for 18 months, during which time general condition improved. Menses reëstablished in September, 1931, normal for 3 months. Became pregnant in December, 1931; spontaneously aborted at 6 weeks, January, 1932. Advised further radiation for permanent castration, as condition does not warrant attempt to go through a pregnancy.

Case 2: Mrs. G. C., 29. Referred by Drs. Thompson and Yoder, December 10, 1930. Two previous normal pregnancies. Last menses August 8, 1930. Duration of pregnancy, four months. Pulmonary tuberculosis. Entire treatment at first visit, 41 days after treatment said she could feel active movements. Examination revealed uterus smaller. No heart sounds, and a diagnosis of a non-viable child was made. No toxic symptoms. Advised to wait. March 11, 1931, 91 days after treatment, fetus and membranes were expelled intact. No pain, no bleeding. Complete amenorrhea since treatment. General condition good to date.

Case 3: Mrs. A. C. L., 42, white. Referred by Drs. Valk, Pool and Redfern, September 7, 1931. No previous pregnancies. Last menses April 12, 1931, five months pregnant. Viable child. Hypertension and renal disease. It was thought that pregnancy was too far advanced to meet with success. X-ray was used at request of attending physicians, and with understanding that if fetus did not die in four or five weeks surgery must be used. Entire treatment at one sitting. Twenty-four days later child was still viable, but uterus had not grown any. A second treatment was given October 1, using only 40% of original dose. On October 10th uterus was smaller, no fetal heart beats. Diagnosis of dead fetus made; advised to wait. On November 15, 1931, 68 days from first treatment, and 44 days from second treatment, Dr. Pool re-

ported spontaneous expulsion of fetus and membranes intact. No complications. Amenorrhea to date. General condition improved.

The next two cases in this report were primarily treated for cancer cervix complicating pregnancy. They are included in this report because of their interest and close relationship to the subject of radiation abortion.

Case 4: Mrs. C. H. E., white. A ward patient, age 35. Admitted to Memorial Hospital June, 1930, and referred to radium service on date of admission. Four and one-half months pregnant. Pregnancy had been normal until 3 days prior to admission, when she began to bleed freely. Pelvic examination revealed a 4½ months pregnancy and a large cauliflower growth of cervix, completely obliterating the cervical canal. Biopsy showed epidermoid carcinoma, grade 3. Five 10 mg. radium needles were buried in the walls of growth for 20 hours. Vagina lightly packed with gauze. Seven days later bleeding had stopped and two 50 mg. radium tubes packed against the growth for 16 hours. One month from date of treatment, examination showed a non-viable child. No bleeding and marked improvement in growth. Six weeks from treatment hysterotomy was done, dead fetus removed, uneventful post operative recovery. One month later cervical canal patent and 100 mg. radium was introduced into the uterine canal for 36 hours. In a week the patient was discharged to return in six weeks. She did not return, but was seen by an interne of the out patient department, and she refused to return saying she was well. She was next seen October, 1931, by interne who reported that her condition seemed to be perfect. At this time she again refused further treatment. March 17, 22 months from treatment, patient reported that she was feeling fine. Gained 40 pounds. No bleeding. Refused examination or further treatment.

Case 5: Is reported for the purpose of contrasting with case 4. Mrs. J. D. M., age 30, admitted to the Memorial Hospital on November 30, 1930. Referred by Drs. Valk and Pool. Seven and one-half months pregnant. Admitted to hospital bleeding freely, very weak and anemic. Examination revealed extensive ulcerated growth of the cervix. Growth bleeding profusely. Biopsy showed an epidermoid carcinoma, grade 4. Four 10 mg. radium needles were buried in edges of growth and a 50 mg. radium tube dropped in crater of growth. Cervical canal obliterated. Cesarean section was discussed at this time and postponed in the hopes that radium and vaginal packing would control bleeding and tide patient over until she became a better operative risk, and in the hope of obtaining a healthy child. Four hours after radium was applied, labor began. Radium was removed and morphine hypodermically failed to check progress of labor. Bleeding was severe and Cesarean section was performed late that afternoon. The patient reacted poorly from operation and died on the third day from shock and hemorrhage. Viable child was removed at operation but it only lived about ten hours.

Case 6: Mrs. E. F. B., aged 32, referred January 5, 1932, by Drs. Lile, Valk and Redfern. Five previous pregnancies. Duration of present conception 2½ months. Suffering from chronic nephritis, anemia and cholecystitis. Entire treatment at one sitting, followed by radiation sickness, relieved by sodium amytal. Thirty days later examination re-

vealed a dead fetus. Condition good. Forty-six days after treatment patient began to bleed slightly, but this accompanied by no pain. Bleeding continued for one week, and on February 28, 1932, 53 days from treatment, fetus was expelled separately from membranes. Membranes did not follow promptly and attending physician administered Piturition. Later was unable to express membranes. There was no appreciable bleeding and condition was good. After a wait of 48 hours for membranes to be expelled, they were removed manually by Dr. Valk, without anaesthesia. No complications. Patients condition is good to date.

Case 7: T. H., colored, age 32. Referred by Out Patient Department of City Hospital, February 20, 1932. Two previous pregnancies. Last menses November 18, 1931. Duration of pregnancy 3 months. During last pregnancy had two apoplectic attacks. Now suffering from hypertension and chronic nephritis. Treatment given fractionally between dates of February 20, 1932, and March 1, 1932. No ray reaction. On March 10, 1932, patient was examined by interne who reported that in his opinion the fetus was dead. On March 20, 1932, 19 days from date of last treatment, fetus and membranes were expelled separately after about 30 minutes of abdominal cramps. Slight bleeding, no complications.

Case 8: Mrs. B. F. M., age 34. Referred by Drs. Johnson and Valk. Last menses January 1, 1932, duration of present conception two and one-half months. Five previous pregnancies, the last two complicated by anemia of pregnancy. Patient now suffering from marked anemia and myocarditis. Treated through the anterior pelvic field on first visit, three days later treatment was given over posterior pelvic field. Patient complained of no nausea or ray reaction from either treatment. On April 11, 1932, Dr. Johnson reported that the fetus and membranes were expelled separately twenty-three days from date of last treatment. There was considerable bleeding between time of expulsion of fetus and expulsion of the placenta. No bleeding since. Patient suffered with sufficient abdominal pain to keep her awake for about 24 hours before expulsion. No complications. Condition good.

Summary: To briefly summarize our cases, let me say that neither case four or five was radiated primarily for the purpose of inducing therapeutic abortion, but were treated with radium on account of cancer of the cervix complicating pregnancy. Excellent results were obtained in case number four, and a complete failure in case number five. The two cases were similar and treated in practically the same way. Case number five, in whom we had a fatal result, was a more advanced pregnancy, her bleeding had been more severe, and her general condition much worse than case number four, on admission. The only variation in the treatment of the two cases was that in case number four, radium needles were buried in the growth, whereas in case number five, needles were buried in the growth and radium tube packed in the crater of the growth. She was also packed tighter as she was bleeding more freely. We cannot attribute the onset of labor in case five to anything other than the tight packing of the vagina, and to the fact that she was two and one-half months nearer term than case four.

In case number four, we had a good result, and may definitely say that we controlled the bleeding, inhibited the growth, and caused the death of the fetus by vaginal radium applications. We have since thought in this case that we might possibly have waited for spontaneous expulsion of the fetus, rather than resorted to Cesarean section, without adding any considerable damage to the tissue of the cervical canal.

In case number three, we feel that we had far greater success than we had hoped for. No case had been reported, where X-ray abortion had been successful in cases as much as five months pregnant. Dr. Stern's most advanced pregnancy was three and one-half months. This case, five months pregnant, did as well as any of the others, though it required 40% more X-ray to produce death of the fetus.

Case number two showed nothing unusual except for the long interval elapsing between time of treatment and expulsion of the fetus, which was 91 days. This illustrates very clearly that after the death of the fetus is established we need not be in any hurry about emptying the uterus by surgical means.

Case number one, was of course an ideal case, in that she was only three months pregnant, and here the fetus was expelled in 28 days. Dr. Valk, who had previously done a surgical abortion on this patient, for hypertension and renal disease, expressed his belief to me that she could not have stood any surgical interference with pregnancy at the time we applied X-ray. In this case, if in none of the others, we feel that radiation abortion was possibly a life saving procedure. The fact, too, that she reëstablished normal menses after 18 months, and became pregnant again, would tend to show that it is possible to induce radiation abortion without permanent sterility. It also shows that if we wish a permanent castration in these patients that we must increase our primary X-ray dosage or re-irridate these patients at a later date. Especially should this be done if menses are reëstablished.

Case number six showed two unusual features, (1) she had slight bleeding for a week prior to expulsion of the fetus, and, (2) the fetus and membranes were expelled separately, with retention of the membranes, the only one in our series in which this occurred. This retention of membranes, however, is thought to be due to the administration of Piturition, and was not in any way connected with her X-ray treatment.

In case number seven there are no unusual features, the only variation in the case being that she was treated fractionally over a period of 10 days instead of at one sitting. This was due to the fact that on the day of her first visit we were quite busy and did not have the time to give entire treatment on that date. She, too, was given more treatment, because we wished to be assured that her castration would be permanent. The fetus in this case was expelled in 19 days, which was the shortest elapse of time in any of our cases.

Conclusions: From a careful observation and follow-up history of these patients we feel that we may justly draw the following conclusions:

1: That abortion by radiation is a life saving procedure in certain

cases where interruption of pregnancy is imperative due to marked constitutional diseases in the mother.

2: That it is a safe method to produce the abortion, and at the same time preclude the possibility of future pregnancies by virtue of its sterilizing effects.

3: That it may be used with success in pregnancies up to as much as five months duration.

4: That, if we can establish the fact that the uterus has stopped growing a few weeks after the treatment, we may wait indefinitely for spontaneous expulsion of the dead fetus provided there are no evidences of toxicity in the mother, as sometimes occur from a dead fetus.

5: That radium in the form of vaginal packs and implantation of needles in cervical cancers, complicated with pregnancy, may successfully be used to treat the cancer and produce an abortion at the same time in the early months of pregnancy.

6: That radiation abortion is the method of choice where surgical intervention would be associated with danger to the patient.

7: That the discomfort resulting from the treatment, and at the time of expulsion is minimum, and that castration symptoms are very mild in cases aborted by radiation.

8: That our patients have not experienced the same degree of radiation sickness after the treatments as other patients treated for other pelvic diseases often do. This fact finds a possible explanation in the thought that in pregnancy some ovarian or follicular hormone is present in the circulation that counteracts nausea.

9: That it is possible to produce abortion with X-ray, which will be followed by only temporary castration, and subsequent pregnancy, as shown by our case number one.

Finally in closing, let me issue a word of warning in the treatment of these cases, which we think constitutes the only possible contraindication to the method. Namely, if a patient is given an abortive dose of X-ray, it then becomes the duty of the radiologist to watch this patient carefully for the next four or five weeks, to establish beyond a doubt the fact that he has succeeded in causing the death of the fetus. This is most important, because if an embryo in the early months of pregnancy, is given this amount of radiation, and it is not followed by death, there will in all probability be some gross physical or mental defect in the fetus. If the product of this conception is allowed to grow on to full term, the patient will more than likely be delivered of a monster. We have adopted four weeks as the time limit for establishing the death of the fetus, and feel that the uterus must be emptied by surgical means, if radiation should fail in causing death of the fetus.

President Stevens: We have with us today an honored guest. I will ask Dr. Smith, the Chairman of the Section on the Practice of Medicine, to introduce him.

Dr. Wm. H. Smith (Goldsboro): Mr. President and gentlemen, it gives me a great deal of pleasure to introduce to you the guest speaker from the Section on Medicine, Dr. O. H. Perry Pepper, Professor of Clinical Medicine in the University of Pennsylvania. (Applause)

TRICHINIASIS

By O. H. Perry Pepper, M.D., Philadelphia

Mr. President—Ladies and Gentlemen:

I have been asked to speak to you today on the subjcet of trichiniasis and I am very glad to do so. The subject has been chosen without any intent to insult the people of this State nor the sources of its pork. Everywhere 'pigs is pigs' and everywhere 'people will be people'; everywhere pigs often have trichina and everywhere people are careless in cooking pork. And if it is true that 'pigs is pigs,' it is equally true that "sausages are sausages," and also it may be said of the sausage that its beauty may be but skin deep.

I think I know how it came about that this subject was chosen for me. A year ago on the occasion of the Baltimore meeting of the American College of Physicians, I was to give a clinic at the Johns Hopkins Hospital. The patient selected for me proved to have trichiniasis and to be extremely interesting. The discussion of that case brought out so many instructive points that one of your officers, who happened to be present, and I were both impressed with our own need of more information on the subject.

The topic of trichiniasis is one which is peculiarly suitable for presentation to an audience composed of a variety of different sorts of doctors. It is a topic which has features of importance not only to the practitioner of medicine but also to the surgeon, the ophthalmologist, the otolaryngologist, the neurologist, the public health officer and the laboratorian; and this latter not only from the point of view of parasitology but also from the importance of clinical laboratory studies in the diagnosis of this disease. The patients suffering with trichiniasis frequently are first seen by either the ophthalmologist, the otolaryngologist or the surgeon. Often the first hint of the true diagnosis in an obscure case is supplied by a clinical laboratory examination. It is evident then that trichiniasis is a condition to which the entire medical profession should be sensitized and yet, curious as it may seem, it is a condition which frequently is overlooked and which somehow or other we are inclined to believe is rare, although statistical evidence proves the contrary.

Perhaps one reason that we are apt to be a little slow to think of trichiniasis is that we have long believed that it is a rare disease and one that is becoming rarer as a result of public health and sanitation measures improving the quality of the meats sold for food. It is not surprising that we should assume by analogy that trichiniasis is becoming less common—so many diseases have been taken care of for us by preventive measures that we have come to feel that all will be. Malaria, yellow fever, hookworm, are examples of what I mean. Smallpox should be going the same way, as should also diphtheria, tuberculosis, lead poisoning, typhoid, et cetera. Unfortunately, trichiniasis seems to be on the increase rather than on the decrease in this country. The reasons for this are not hard to find.

In the first place there has never been any lack of trichina in the hog, and such success as has been achieved in suppressing the disease has

been due to inspection of meat and to the custom, fortunately widespread in this country of adequately cooking pork. Unfortunately, however, inspection of pork has proved to be too difficult and expensive to be carried out routinely with success. Secondly, many families grow and butcher their own animals, trichina in which thus escape any inspection.

It is not so easy to recognize the larva encysted in the pork, for in that animal there is relatively little calcium deposited in the cyst wall, and the resulting lesion is neither as visible nor as 'gritty' as is usually supposed. In fact, microscopic examination is necessary for satisfactory inspection and this has proved impractical.

Granting that up to 6 per cent of all hogs are infested and that we are not protected by inspection, it is obvious that trichiniasis is sure to continue to appear in humans unless the trichina are killed in the cooking. Unfortunately, again this is not always accomplished. Not only are there many in the country who seem to prefer to eat their pork almost raw—but the increasing popularity of various forms of sausage and 'hot dogs' also favors the ingestion of insufficiently cooked pork. 'Hot dogs' are all right if only they are hot enough, for it takes a temperature of over 58°C. to kill encysted trichina larvae. At the rush hour at the 'hot dog stand' or at the picnic, or when the cut of meat is thick, it may happen that the central part of the food is not heated to the point required to kill the worm. And so trichinous meat, not adequately cooked is ingested.

Recent clinical experience in Philadelphia illustrates each of these factors. We have seen an epidemic of 29 cases following the ingestion of meat from an animal purchased by an Italian family, slaughtered and eaten in the home; we have seen three cases in students the infection arising from pork inadequately cooked by an inexperienced substitute cook, and also we have had several cases from salami or Bologna sausage.

Let us now turn to the worm which is the cause of the condition we are discussing. It is a nematode or thread-like worm and its name is Trichinella spiralis or "Little spiral thread." Infection occurs when encysted viable larvae are ingested and freed from their prison by digestion. Once liberated they rapidly mature and the trouble starts. The adults spend their life in the small intestine and may be found in the stools or in the duodenal contents. The female is more than twice as long as the male and reaches a total length of some 4 mm. With a low power lens they can be easily seen as short glistening threads.

Within ten days after the ingestion of infected meat the cysts are dissolved, the larvae have matured, and the female prepares to perpetuate her species and to terminate ours. To do this she buries her caudal extremity in the intestinal mucosa and liberates 1000 or more live embryos into the lymphatic spaces. By this time it is stated the poor adult male has died. The embryos pass into the blood and are widely disseminated throughout the body passing not only into the blood, but also into the spinal fluid, into the milk, into a pleural effusion, and into the pus of furuncles. It is, however, in the voluntary muscles that the migrating embryos come to rest, penetrate a muscle fibre, mature to larvae and become encysted within about six weeks. Gradually lime is

deposited in the cyst wall. Within its cyst the larva may remain viable for many years, ready to commence the cycle over again when the opportunity offers. At this stage the larva is a half to 1 mm. long and it lies coiled up, sometimes several together in the cyst, which appears to the unaided eyes as a minute opaque point in the muscle.

Rats and pigs are the animals chiefly infested, but many other animals are subject at times, and of course an infected human might get some belated satisfaction by infecting the impatient cannibal who failed to boil him well before eating.

Now let us turn from the happy prosperous nematode to the poor unfortunate human worm who has by carelessness or ill luck eaten of insufficiently cooked 'measley' pork. The results vary enormously. There may be an immediate gastroenteritis either trifling or severe, and no later symptoms; on the other hand, there may occur no initial reaction but later a series of symptoms may appear and these again may in some instances be negligible while in other cases death results.

It is not known whether the initial diarrhoea is due to the trichinous character of the ingested meat or not. In all probability it is and certainly it tends to result in the expulsion of the encysted larvae before they can gain their freedom. Diarrhoea is more prompt and severe in children and it seems to confer on them some degree of protection against trichiniasis. Soon the primary gastroenteritis passes off and if nothing further transpires it is forgotten but often when ten days later the true symptoms of trichiniasis occur, one can find diagnostic help in the earlier though transitory diarrhoea.

When the embryos are disseminated the true picture of trichiniasis appears and it is at this point that the subject becomes one of great clinical interest and importance because of the variability in the symptom picture.

The classical picture is well known but it is often not appreciated that the symptoms may be so mild as to be overlooked and soon forgotten or may be so severe that death soon results. The symptoms which form the classical picture include (1) a return of diarrhoea, cramps and perhaps vomiting, (2) muscular pains due to myositis from the invasion of the voluntary muscles especially the gastrocnemii, (3) fever up to 104 or 105° and (4) swelling of the face especially about the eyes, and sometimes swellings elsewhere on the extremities. An excellent description of such a patient is that written by Osler in 1897 on the record of a case of trichiniasis in the Johns Hopkins Hospital:

"The face and eyelids are puffy, the face suffused and red, the tongue clean, the arms and hands much suffused—the latter being cyanotic; they are closed with difficulty as they are so stiff. The feet and arms are considerably swollen, particularly over the backs and wrists where they are puffy. The swelling of the arms is actually in the muscles, which are sore; there is distinct soreness over the biceps; no distinct soreness exists over the muscles of the trunk. The feet are livid, the legs still and cold, the muscles of the calves are not particularly swollen, not very tender."

The case on which Sir William Osler made this note was reported

in the literature by Thayer because it was one of the first cases in which the spectacular eosinophilia of trichiniasis had been observed.

The diagnosis of a typical case may not sound difficult, nor is it when a history of the ingestion of poorly cooked pork and of the initial gastroenteritis is obtained and when the symptoms are as described. However, it is a very different matter when as often happens no suggestive history is available and the symptoms are aberrant. How may the symptoms vary?—in an amazing variety of ways. Some of these leave the patient in the hands of the internist, others lead him to the office of certain specialists or even to the operating table.

When the myositis is severe and accompanied by intense pain it is easy to fail to note that the pain is in the muscles not in the joints, and that the limitation of motion is due to muscular pain and spasm and not to joint swelling. If this mistake is made a faulty diagnosis of rheumatic fever may often be made. Fever and leucocytosis seem to support this diagnosis.

Again typhoid fever has often been suspected when the fever and diarrhoea dominated the symptom picture, and if not typhoid why perhaps food poisoning has been suspected sometimes even being traced back to the food which actually supplied the primary infestation. Enlargement of spleen adds to the confusion.

Swelling of the eyelids and the face has frequently led to a suspicion of acute nephritis. The so-called frog face of trichiniasis may be closely simulated by acute nephritis and by angioneurotic edema. We will later refer to the occasional case in which the circumorbital swelling presents an inflammatory aspect. Albumin will frequently be found in the urine but as a rule the diagnosis of acute nephritis fails to be upheld except by the first impression of the facies.

Among the various parts of the body into which the embryos penetrate during their dissemination is the cerebrospinal space. Not only can the larvae perhaps be discovered in the cerebrospinal fluid as a method of diagnosis but a symptom complex strongly resembling acute meningitis may appear. The patient is febrile and complains of intense headache, on examination one finds that the neck is stiff and the Kernig test is positive. In addition, the patellar reflexes may be lost. Such a picture, especially in a child, would undoubtedly be diagnosed meningitis until the clear spinal fluid, the eosinophilia or perhaps the fortunate sight of a larva in the cerebrospinal fluid opens one's eyes to the true nature of the case.

Rarer symptom pictures include one which suggests lockjaw as a result of myositis of the masseter muscles, and another in which dyspnoea and painful respiration from myositis of the diphragm may suggest some pleural or pulmonary disease.

So far in the discussion of symptoms we have limited ourselves to those symptom pictures presented by trichiniasis which would be apt to bring the patient to the internist or to the general practitioner; those we have mentioned simulate at one time or another rheumatic fever, food poisoning, typhoid fever, acute nephritis and meningitis, tetanus or pleurisy and certainly offer pitfalls to the unwary.

Let us now refer very briefly to a few of our recent cases which

proved to be trichiniasis and which illustrate some of the points just mentioned.

Cases 1 and 2 (Margaret and Albert Hilker). A husband and wife acquired trichiniasis from eating bologna sausage on July 1st, 2d and 3d. Their very different reaction to this same infection is interesting. The husband on admission to the hospital gave this history: On July 4th he spent the day in the country doing work to which he was unaccustomed on a farm and drinking water in a cow barn. The next day he experienced very severe muscle stiffness. This he blamed on the previous day's exertions. However, for four days this stiffness and muscle soreness increased until he had to stop work. On the fifth day, the temperature rose to 101° and swelling appeared about his eyes. During the next few days the fever rose higher and watery diarrhoea appeared. He was admitted on July 17th, two weeks after eating the sausage and nine days after the appearance of fever. The staff were very much impressed by the tenderness and swelling over the whole right side of the face. The spleen was palpable. The ward staff did suggest the possibility of trichiniasis but were more inclined to consider the case one of either severe sinusitis or mild typhoid fever. A blood count, however, revealed a leucocytosis of 23,600 with 28 per cent of eosinophils. This placed the diagnosis of trichiniasis again to the fore and a lumbar puncture was performed for diagnostic purposes. The fluid was crystal clear but examination of a centrifuged specimen revealed under the microscope an unmistakable living larva. The patient continued to run an irregular fever for five weeks, and finally left the hospital still an invalid and still with a high white count and high eosinophilia. The duration of the fever and its curve are noteworthy—they are well shown on this chart.

When this diagnosis had been made the patient's wife was questioned for symptoms but had none. A blood count, however, revealed 15 per cent of eosinophils. It was not until almost three weeks after the primary infection that she developed headache, weakness, pain in her calves and becoming ill was admitted to the hospital. She then gave the history of having had some swelling of the face about the time her husband was taken ill. No larvae could be found in her blood or spinal fluid but she continued to have an eosinophilia up to 21 per cent.

Other Cases. Other recent cases include one (Best) who presented the characteristic muscle pains but who also had distinct numbness in the left hand; another (Clymer) had the circumorbital edema but his chief complaint was "gas on the stomach," incidentally his eosinophilia reached 32 per cent. Still another (Ballar) had the pains of myositis but weakness was a very prominent symptom. Another (Prencipe) presented the picture of angioneurotic edema with numerous areas of edema on body, limbs and face; these had been coming and going for almost a year. There was no other history or symptoms; the eosinophilia was extreme, 50 per cent of 15,400 white cells being eosinophils. This might have been accepted as a part of the picture of angioneurotic edema, whatever that actually is, but a biopsy of muscle tissue revealed trichina. This case makes one wonder how often what is diagnosed as angioneurotic edema may truly be trichiniasis?

Now let us mention some of the symptoms of trichiniasis which may direct the patient first to a specialist. First, the surgeon, not because this often happens but because the possible errors is more serious in this field. It is the combination of abdominal pain, tenderness and rigidity, vomiting, fever and a high white cell count which leads to a suspicion of an acute abdomen. For example S. G. (Greenberg) a girl of nineteen developed acute epigastric pain which recurred frequently during the next two weeks. Finally an attack of epigastric pain was so severe that she fainted,—this was followed by great tenderness in the epigastrium. On admission to the hospital, the white cell count was 14,500 but the differential count revealed 18 per cent of eosinophils; on another day there was an eosinophilia of 52 per cent.

Far more common than the simulation of an acute abdomen is the presence of such eye symptoms as to direct the patient to an ophthalmologist. The three cases of students at the University of Pennsylvania already mentioned illustrate the latter very beautifully. The cook in their fraternity house was ill and a substitute failed to cook the pork sufficiently. Apparently this was about February 11th. Only one of the three remembered any primary diarrhoea.

A week later the first student became ill. His first symptoms were a "pulling sensation" in his eyes, the eyes felt sore, the vision was blurred and at times he saw double. The eyelids were puffed up and swollen. Also had some pains in the legs and painful swelling of the parotid glands. However, it was to the Ophthalmological Section that he reported and from there he was sent to bed in the hospital.

The same day the second student found his eyes swollen and red, vision was blurred and movement of the eyes caused pain. He also came to the hospital because of his eyes. The third did not develop his symptoms until a week after the others but when he did the picture was identical.

All three of the boys had fever of over 102° for a few days, all looked and felt sick. Except for the ocular redness, swelling and tenderness the physical examination was essentially negative—in none was the spleen palpable. The white cell counts were between 9,000 and 14,500 while the eosinophilia reached 56 per cent in one, 37 per cent in the second and 35 per cent in the third.

Fortunately all made uneventful recoveries.

The otolaryngologist sees cases of trichiniasis because at times the circumocular edema assumes an inflammatory appearance which with local pain and fever suggest a suppurative sinusitis. In only one instance, however, in our series of cases of trichiniasis was the admission diagnosis pansinusitis.

We have never observed deafness but it has been reported.[1]

I have now enumerated and illustrated a number of very deceptive pictures which may make difficult the prompt diagnosis of trichiniasis. Often it is the eosinophilia which first suggests the diagnosis.

Diagnosis. The routine blood count supplies two diagnostic aids—first, leucocytosis, secondly, eosinophilia. Both appear by the time the

[1] Bosch: Munch. med. Wchnschr., 1931, *78,* 436.

GRAPHIC CLINICAL CHART.

Name Albert Hilker Age Residence D
Disease Case No. Date 7/19/29

Second Week of Illness

GRAPHIC CLINICAL CHART.

Name Albert Hilker Age Residence D
Disease Case No. Date 7/25/29

Third Week of Illness

Fourth Week of Illness

GRAPHIC CLINICAL CHART.

Name Albert Hilker Age Residence D
Disease Case No. Date 8/4/29

Fifth Week of Illness

GRAPHIC CLINICAL CHART.

Name Albert Hilker Age Residence D
Disease Case No. Date 8/14/29

Sixth Week of Illness

MARK
PULSE ON
RESP ON
TEMP.
DAY OF MONTH
DAY OF DISEASE
TIME OF DAY A.M. P.M.
PULSE RESP. TEMP.
Other Notes
Treatment
URINE Oz. Ounces Sp. Gr.
BOWELS
WEIGHT
Centigrade Scale

larvae are reaching the muscle. The leucocytosis is variable sometimes reaching 75,000, sometimes trifling. The eosinophilia is more constant and is present even when there is no leucocytosis. Eosinophilia is present in almost every case but may be absent in extremely severe cases of the type which often prove fatal. As a rule the percentage of eosinophils is found between 20 and 40 but higher figures are not uncommon, the percentage occasionally even reaching 80. As time passes the leucocytosis tends to disappear but the eosinophilia may persist for months and perhaps for years.

Two minor points deserve mention in connection with the eosinophilia. First that trichiniasis is an excellent example of the importance of the differential count of white cells. Many of the diagnostic difficulties tend to vanish when it is discovered that an eosinophilia is present. Leucocytosis with eosinophilia has a far different significance than when the increase is due to the neutrophils of the blood!

The second point concerns the necessity of remembering the persistence of eosinophilia after trichiniasis. A forgotten trichiniasis may explain an eosinophilia accidentally discovered at some later date. It is even possible that trichiniasis may be the true explanation of some of the reported instances of so-called constitutional or familial eosinophilia —although it is only fair to state that Stewart of our medical clinic has been unable to find evidence of trichiniasis in any of the eosinophilic families he has studied.

To prove the diagnosis of trichiniasis it is, of course, necessary to identify the source of the infection, to recognize related cases or to demonstrate the parasite in the patient. This latter can be done in a variety of ways—according to the period of the disease. In the early stage of the attack one may hope to find the worm in the feces, but it must be remembered that the parasite is very inconspicuous and that a lens is almost a necessity. A fine thread 4 mm. long is readily overlooked by the unaided eye. As a rule examination of the feces is not a satisfactory method of diagnosis. In the early stage in duodenal contents the parasites have also been found. By the time, however, that the case reaches the physician and that the possibility of trichiniasis has been thought of, other and better methods are available.

The first of these is the circulating blood. Herrick and Janeway in 1894 and 1895 were the first to find the embryos in the blood. They may be found in unstained wet preparation under the microscope. Remember that a red blood cell has a diameter of a little over 7 thousandths of a millimeter so that the embryo is many times the length of the red cell and readily knocks the cells about as it swims along. Some prefer to lake the cells before searching for the parasite.

In the spinal fluid[2] the embryos can also be found, and centrifugation may assist in their discovery. I do not know how constantly embryos can be found in the spinal fluid but certainly they may occur in cases which are without signs of meningeal irritation. In cases with marked headache and stiff neck a spinal puncture will not only often relieve these symptoms but offers a very valuable aid to diagnosis.

[2] Van Cott and Lintz: Jour. Am. Med. Assn., 1914, *2,* 680.

Later, one's chief hope rests on the demonstration of the encysting or encysted larvae in the muscle. Removal of a piece of muscle and its examination not only by teasing and gross inspection but by fixation and microscopic examination of serial sections.

Finally, after sufficient time has elapsed for the cysts to become calcified it may be possible to demonstrate the numerous oat-like bodies by X-ray of various muscles. This is the same method which has been used in filariasis but it is a far more efficient method of diagnosis in filariasis than in trichiniasis. I used the term "sufficient time" in speaking of the period necessary for calcification and I said "sufficient" rather than a more definite word because it is not known just how long it takes for calcification to take place. In man marked calcification takes place in the cysts but in the hog little calcium is deposited in the cysts which makes them less obvious to gross inspection.

In spite of all these methods of diagnosis trichiniasis is probably very often not recognized, not because these diagnostic methods fail but because we fail to think of the possibility of trichiniasis and so do not search for the evidence. If the symptoms or the eosinophilia starts us on the right track, it is usually possible to prove the diagnosis.

Prognosis and Treatment. Prognosis seems to depend in part on the amount of infection, the severity of the primary diarrhoea and the general strength of the patient. The prognosis is better in children perhaps due to the greater tendency to diarrhoea. Ignoring these factors, however, the disease varies enormously in severity.

The mortality is about 6 per cent but this does not tell the whole story. In the recent epidemic near Philadelphia so well reported by F. C. Aldridge,[3] there were 29 cases of which 2 died, 5 were severely ill, 17 only mildly ill and 5 had practically no symptoms at all. Even in cases not dangerously ill, convalescence may be very slow, much weight is lost and a severe secondary anemia may persist. Painful myositis may continue for a long time. A friend of mine a surgeon in New York was incapacitated for a year following an attack of trichiniasis, the origin of which he was never able to trace.

It is obvious that a disease with a 6 per cent mortality and such a prolonged course deserves serious efforts in prevention and treatment. Prevention we have discussed and it is there that hope rests, for treatment is of little avail.

In the primary stage, if by chance the true nature of the condition is recognized, every effort should be made to encourage diarrhoea in the hope of getting rid of as many of the larvae as possible, or at least of discouraging their enthusiasm for large families.

Once the embryos have been liberated into the blood, there seems to be little to do beyond relieving the pain and other symptomatic treatment. Arsphenamine and neoarsphenamin have been used, antimony and potassium tartrate has been tried, and more recently Africa and Lucker[4] reported favorable results with neutroflavine, the acriflavine base in the treatment of rabbits experimentally infected with trichinae.

Still more recently, however, in the April 9th number of the *Journal*

[3] Am. Jour. Med. Sci., 1931, *181,* 312.
[4] Proc. Soc. Exper. Biol. & Med., 1931, *28,* 432.

of the American Medical Association, Miller, McCoy and Bradford[5] report trying in experimentally produced trichiniasis not only the substances already mentioned but also rivanol, gentian violet, metaphen and Lugol's solution. "In no instance was any demonstrable therapeutic effect obtained." This is very discouraging.

In fact, the whole problem of trichiniasis is discouraging. We are constantly threatened in that a high percentage of hogs are infected; inspection appears to be futile or impossible; there is a growing use of pork meat in sausages of various kinds and a considerable carelessness in the cooking of sausages. Once ingested infection is almost inevitable and subsequent treatment is of little or no avail. No wonder the matter appears discouraging and no wonder the disease seems to be on the increase.

It is for this reason that I have ventured to present a somewhat old-fashioned subject to you in a somewhat didactic manner. But to me it is a most interesting subject and I hope that I have succeeded in making it interesting to you. In closing let me thank your officers and yourselves for the invitation to visit you and let me express my appreciation of the great honor done me and the pleasure it has given me.

President Stevens: The Tellers are ready to report the results of the balloting for officers of the State Board of Medical Examiners. We will now have the report of the Tellers.

Dr. V. M. Hicks: Gentlemen, the total number of votes cast was 271; necessary for election 136. The following men have received a majority of the total votes cast:

Ben Royal	147
Ben J. Lawrence	140
F. Webb Griffith	145
Hamilton McKay	174

These four men have been elected. (Applause)

Secretary McBrayer: The President asks me to say that he declares elected to the next Board of Medical Examiners: Ben Royal, B. J. Lawrence, F. Webb Griffith and Hamilton McKay.

These Tellers tell me—and the President requests—that you now cast your ballots and in doing so vote only for three. The Tellers request that you vote on the official ballot. They can't read your writing when you write it on a prescription blank.

. . . The Tellers then distributed the ballots for the second balloting. . . .

Secretary McBrayer: If all have voted, the President says the ballot is closed. The Tellers will retire and count the ballots.

President Stevens: While the ballots are being counted we will hear a paper by Dr. Ringer on "Modern Trends in the Management of Tuberculosis."

[5] Jour. Am. Med. Assn., 1932, *98,* 1242.

MODERN TRENDS IN THE TREATMENT OF TUBERCULOSIS

By Paul H. Ringer, A.B., M.D., F.A.C.P., Asheville

Tuberculosis was known to Hippocrates, as evidenced by his famous aphorism: "From a spitting of blood there comes a spitting of pus." It seems strange, therefore, that the rational treatment of this disease should have been postponed until modern and, in the main, wholly contemporaneous times.

We may divide broadly the treatment of tuberculosis during the past fifty years into five eras. These are:

1. Climate plus no rest.
2. Climate plus some rest.
3. Tuberculin.
4. Rest plus some climate.
5. Rest! plus Rest!! plus Rest!!!—general and local.

The first era, that of climate alone, had for its slogan in this Country: "Young man, go West!"—and the young man went West and lived on a ranch and rode horses and walked over the country-side and if he ranged true to type, he grew worse and had hemorrhages and died and everybody felt that consumption was a uniformly fatal disease.

Dr. Trudeau, in the Adirondacks, had been preaching a gospel of rest; but, as we now know, of inadequate and insufficient rest. None the less, all credit to him for he sensed, if imperfectly, the value of this most potent form of treatment. Climate was still the first desideratum, but to it was added a modicum of rest, especially in the presence of fever. Afebrile patients not running a fast pulse and not losing weight, irrespective of whether the sputum was positive or negative, were given exercise. This was the situation during the first decade of this century. X-ray examinations were relatively few, and consequently but slight attention was paid to the presence of cavities, as the majority of them could not be detected by the ordinary methods of physical examination, and therefore their presence was unsuspected. Some patients recovered permanently; many improved, but eventually most of them relapsed and went the way of all flesh.

Those of us practicing from about 1908 to 1913 cannot fail to remember the wild enthusiasm over tuberculin as a curative agent. Around 1914 there were over seventy different kinds of tuberculin on the market. That tuberculin is a useful adjunct in the treatment of tuberculosis, there can be no doubt. That the cases must be carefully selected and that the administration of the product must be in the hands of one skilled in its use has become, through bitter experience, almost axiomatic. While the tuberculin furor was on, however, discretion was cast to the winds, and tuberculin was administered with reckless abandon by inexperience and, alas! often ignorant physicians. The pharmaceutical houses, with their noses to the commercial earth, quickly sensed the need for ready-made dilutions of tuberculin prepared particularly for men unaccustomed to its use. So, serial dilutions were promptly forthcoming

and patients were receiving 5 minims of dilution A or 8 minims of dilution C, no one having the least idea of what was being given or received in terms of milligrams, the accepted unit for tuberculin administration.

With the failure to properly select cases, and with the haphazard method of dosage, to which in many instances was added ignorance of, or failure to appreciate, the symptoms denoting a reaction, it can well be understood that much damage was done and that, as an inevitable result, tuberculin fell into disrepute—as deep or deeper than its far-heralded beneficence in the treatment of tuberculosis. From being used almost universally, it fell into almost complete oblivion. Many patients, therefore, fortunately escaped being injured by its injudicious administration; but a goodly number also were deprived of its definitely adjuvant function in the management of their disease.

To-day tuberculin in pulmonary tuberculosis is but rarely used—in my opinion it is not used as much as it should be. It still finds its field in certain aspects of surgical tuberculosis, a discussion of which is foreign to the scope of this article.

It became gradually evident to the professional mind that climate, exercise, tuberculin were not bringing about the desired results. The pendulum swung toward *Rest* with still some accent on climate. In this connection I would express my own opinion as to the value of climate. The man who says that climate is everything has been proven wrong. The man who says that there is nothing in climate is also wrong. This I know beyond the possibility of a doubt as a result of practicing for over twenty-six years in a region known for its salubrious climate. Of course the doctor dwelling in a health-resort hesitates to vaunt its climatic value lest he be suspected of unethical motives; but any physician of experience dwelling in Asheville, Saranac Lake, Denver, Colorado Springs, Albuquerque, El Paso, Tucson, or in any other resort possessing climatic advantages, will bear me out as to the truth of my statement. As I have so often said to patients, climate is one rung in the ladder of health. It is not the most important rung; but if it is eliminated, the ladder is not as good as it was before. The combination of a good climate with all the other methods in use for the treatment of the tuberculous brings about the best results. What the patient does is more important than where he does it; but if he does right in a good place, he has the best chance for recovery.

Rest, therefore, was advised and bed-rest, irrespective of the presence or absence of fever, became the general rule. This has continued to be the dominant form of management.

For many years, however, two facts had brought themselves to the attention of students of tuberculosis—two facts that could not be sidestepped. First, that despite all the bed-rest possible, the diseased organ moved with each respiratory excursion; namely, from eighteen to thirty times per minute; and therefore the focal point of disease could not in itself benefit wholly from the general rest instituted. Second, cases with cavity showed a far shorter expectancy of life than cases without cavity. The dangerous nature of the destructive lung lesion resulting in cavity formation was gradually, though slowly, being realized and appreciated.

It therefore seemed advisable to utilize some means of obtaining *local* rest for the diseased lung in addition to *general* rest for the diseased body.

Four methods have been devised for bringing about rest to the diseased lung, the second of which is dependent upon an incomplete result with the first. These are as follows:

Artificial pneumothorax,
Internal pneumolysis,
Phrenicectomy,
Thoracoplasty.

The indications for any type of lung compression are practically identical; namely, a unilateral, or predominantly unilateral, lesion with the involvement in the opposite lung fibrotic and regressive in nature rather than exudative and progressive. Fibrotic types of tuberculosis in a lung that it is desired to compress react better than do the acute, proliferative types.

Pneumothorax

Devised as now practiced by Prof. Carlo Forlanini, of the University of Paris, in 1881, this is by all odds the method of choice and when successful, gives the best results. The procedure is simple, practically free from risk and almost painless. This is not the place to discuss details of administration. Fig. 1 shows the ideal result that can be obtained —the lung wholly compressed and maintained immobile in its air-splint.

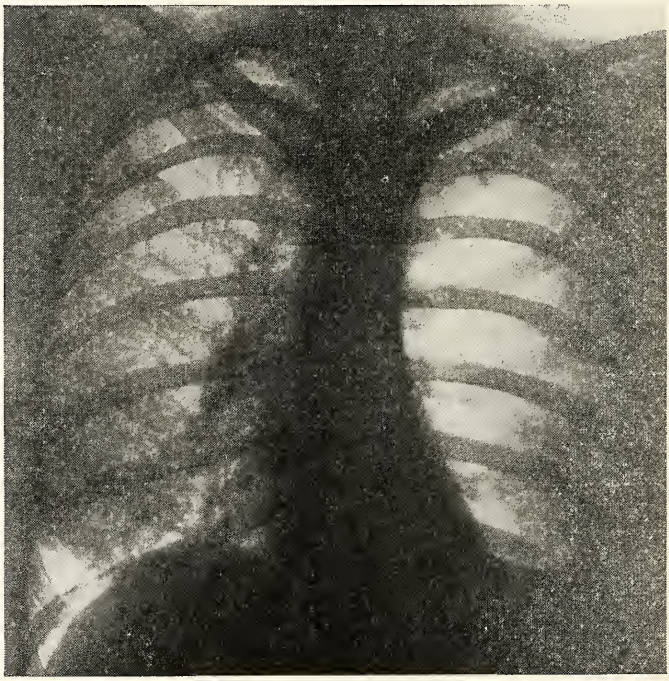


Fig. 1. Complete left-sided pneumothorax.

Compression should be maintained as a general rule for a period of three years, though variations are very great.

Internal Pneumolysis

All too often pneumothorax is only partially successful, the lung being prevented from collapsing completely by adhesions to the chest wall, which hold it out much in the capacity of guy-ropes. Dr. Jacobaeus, of Denmark, devised a method of severing these adhesions by means of the cautery, visualization of the adhesions being obtained by the thoracoscope, introduced into the pneumothorax cavity. This instrument is analogous to the cystoscope. Fig. 2 shows a partially successful pneumothorax. All the good that pneumothorax can do in this case has been accomplished. A further collapse is impossible unless the adhesions are

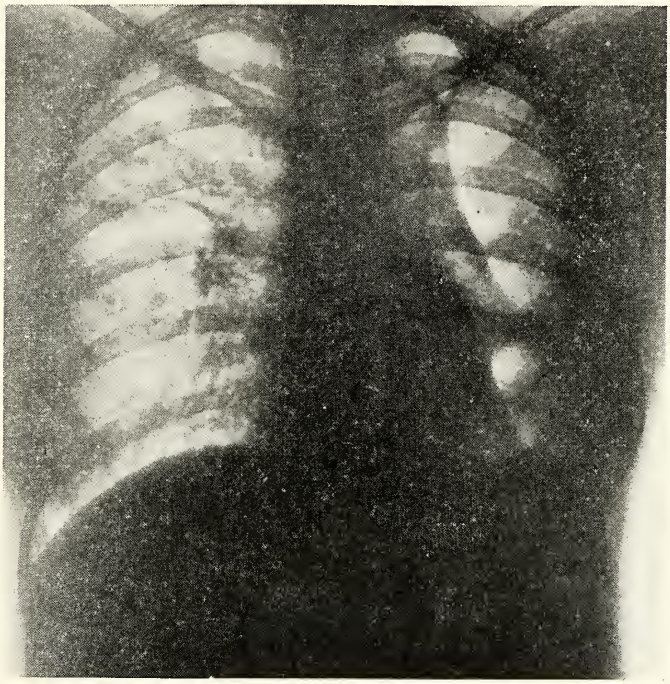


Fig. 2. Incomplete left-sided pneumothorax; large adhesions seen in lower portion of chest; three adhesions in upper portion do not show well in cut but are plainly visible on film.

severed. Fig. 3 shows the result after pneumolysis, the adhesions having been cut and a complete collapse obtained.

Phrenicectomy

When pneumothorax is not possible because of adhesions and often as a preliminary to thoracoplasty, section of the phrenic nerve is practised, the corresponding leaf of the diaphragm being paralyzed and rising to a variable height of from three to eleven centimeters, according

to the case. It is impossible to predict how much rise one will obtain. The operation is simple and, in the hands of a skilled surgeon, free from

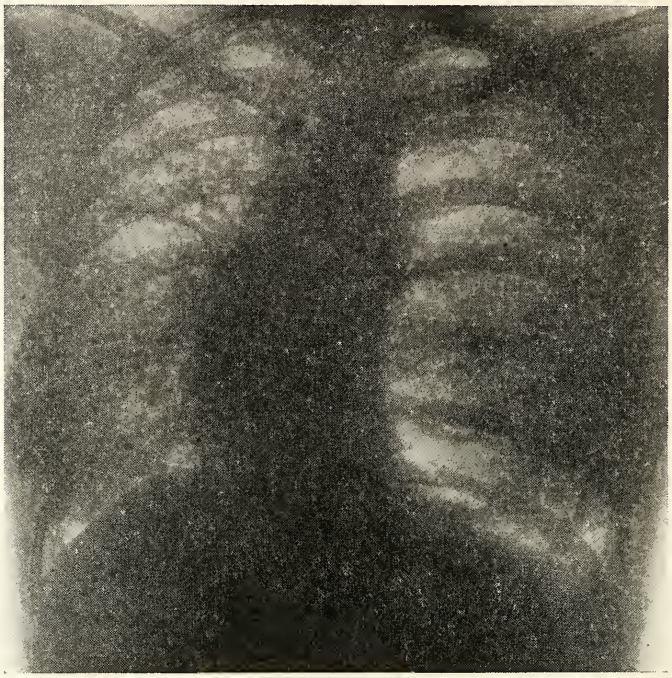


Fig. 3. Same case as Fig. 2 after internal pneumolysis. Note complete compression of lung and displacement of heart to the right.

risk. The results are sometimes striking. Fig. 4 shows the condition before phrenicectomy in a case in which pneumothorax had been impossible. Note the large cavity in the right side with thick, heavy walls. Fig. 5 shows the result one year after phrenicectomy, the cavity having been obliterated and converted into a fibrous tuft.

Thoracoplasty

When pneumothorax has failed and phrenicectomy has not achieved the desired result, provided that it is believed that the contralateral lung is in satisfactory condition, thoracoplasty is the operation of choice. Eleven ribs on the damaged side are bisected in part, beginning near their vertebral extremity. In a complete thoracoplasty, a total of about 120 cc. of rib is removed. It is the all-important and also the most difficult portion of the operation to remove a satisfactory amount of the first rib so that the dome of the lung may satisfactorily collapse.

The operation is a serious one and is to be entered upon, like the marriage state, "soberly, discreetly and in the fear of God." Results are surprisingly good and complete recovery frequently is brought about. Fig. 6 shows a condition after pneumothorax had been attempted and failed and after phrenicectomy had produced no results. Fig. 7 shows

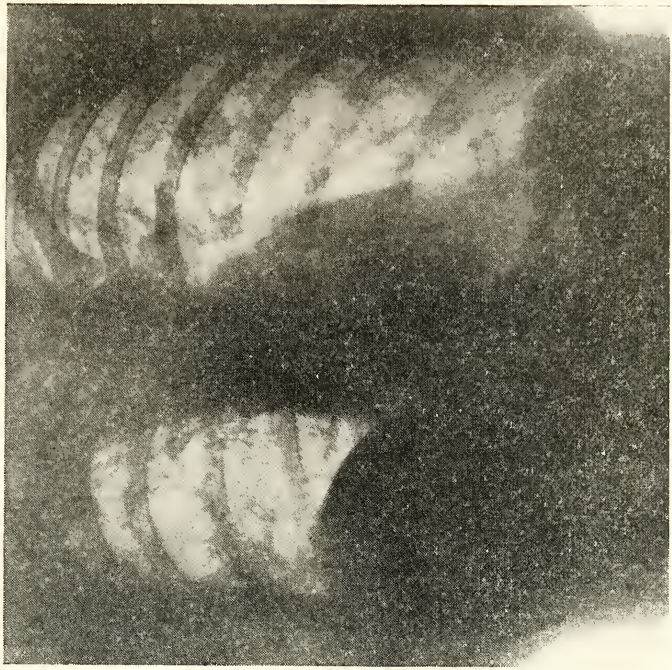


Fig. 5. Same as Fig. 4 one year after phrenicectomy. Note enormous rise of diaphragm and obliteration of cavity.

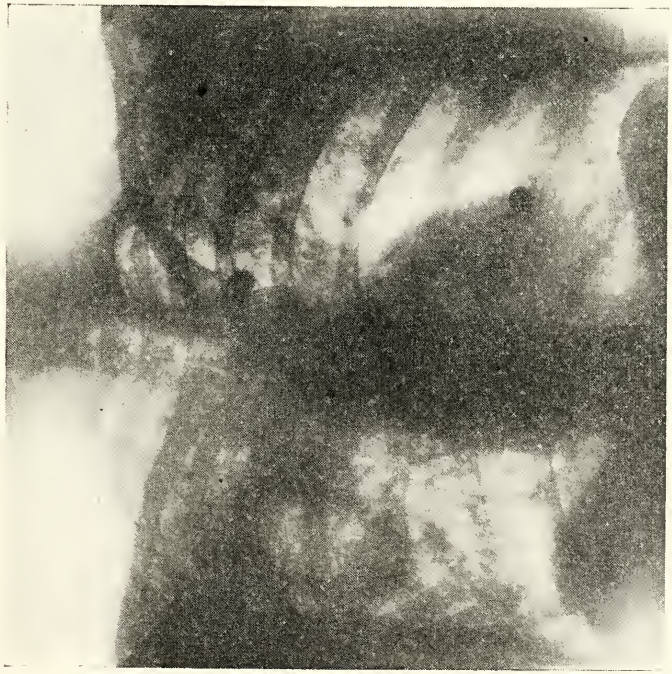


Fig. 4. Case before phrenicectomy with large cavity in middle third of right lung. Pneumothorax impossible because of adhesions.

Fig. 7. Same as Fig. 6 one year after thoracoplasty. Note complete collapse of left lung with obliteration of cavity. Patient absolutely well.

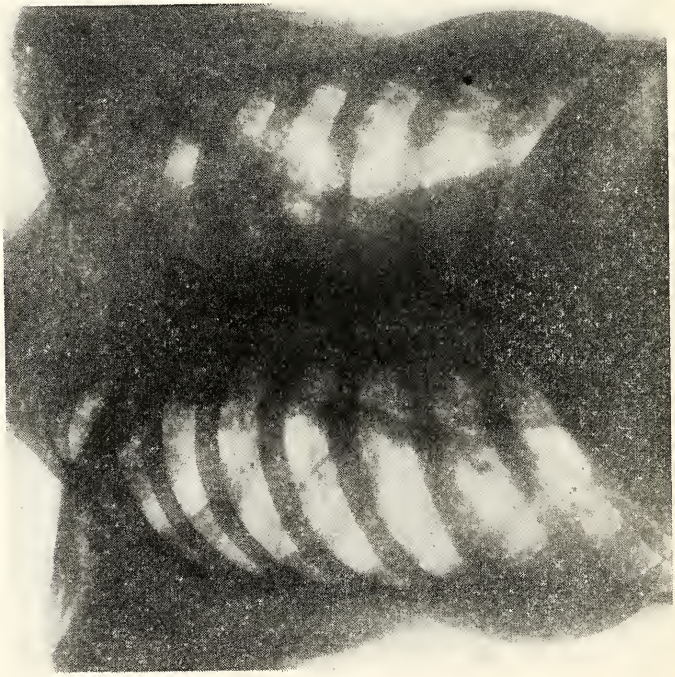


Fig. 6. Advanced tuberculosis of left lung with large cavity formation. Pneumothorax impossible because of adhesions. Phrenicectomy produced no results.

the result after thoracoplasty—the lung completely collapsed and the patient well.

In this brief epitome of the modern trends in the treatment of tuberculosis, it has been possible, of course, to touch but the high spots, and then but very sketchily. Typical cases showing good results have been shown in order that a general audience, one not particularly concerned with the details of treatment of tuberculosis, might appreciate the general strides that have been made in recent years. Rest, general and local and more particularly local, by which is meant pulmonary compression, constitutes the greatest advance made in the treatment during the last quarter of a century.

By resorting to the procedures that have been briefly mentioned, many far advanced cases are given a chance which they did not before possess, and every year hundreds if not thousands, who otherwise at best would have been doomed, to a long life of invalidism are being returned to working and economic efficiency.

A FEW FALLACIES IN GYNECOLOGY

By F. Webb Griffith, A.M., M.D., Asheville

Miss A. H., age 24, consulted me with the following history: Her menstruation had started at fourteen and until two years ago had been regular each month, lasting three or four days, and practically painless. During that time she had been going to the public school and later doing the usual household duties of a girl in the country. About two years ago she moved into town and started to work in one of the factories. Shortly thereafter her periods became very irregular, averaging three or four times a year, and then so scanty as to be almost negligible. At each month, however, she would have the usual menstrual molimena. She had consulted several physicians, each of whom had given her some medicine "to bring on her periods" but without success. Rectal examination showed the pelvic organs normal. General physical examination was essentially negative except that she looked tired and pale and the red count was 3,500,000 with a haemaglobin of 65%. Further questioning revealed the fact that her evenings were usually spent in some form of amusement; that she rarely went to bed before eleven o'clock, and that her bedroom was none too well ventilated. She was advised to be in bed by nine o'clock at least three nights a week; to have all of her bedroom windows open; and to spend a few cents more each day at lunch time for milk. She was given a simple tonic to whet the appetite. Within three months her general health had improved and her menstruation had become practically normal.

The point I wish to emphasize by this patient is the worthlessness of the so-called emmenagogues. With the exception of pregnancy, lactation and the rather uncommon cases of infantile genitalia, amenorrhoea is practically never due to pathology in the pelvis. In fact, if the physician will inquire carefully into the mode of living, the hygienic surroundings of the patient, the question of worry, and then make a general physical examination to detect anaemia, early tuberculosis, hypothyroidism,

under-nutrition, and other similar constitutional conditions, he can practically disregard the pelvis.

If the average woman of forty or over has an increased uterine bleeding, whether it be in the form of a menorrhagia or metrorrhagia, unless the bleeding is very severe, the chances are about ten to one she will go at least two or three months before consulting her physician. When she does seek medical advice the chances are at least five to one that she will be given ergot or some similar drug with the assurance that it is probably the change of life, and if she is not better in a month or two, to return again.

There are many conditions, some simple and some serious, that manifest themselves after the age of forty and which cause the increased uterine bleeding, erroneously ascribed by the woman and frequently by the physician, to the change of life. During the normal menopause there is always a decreased bleeding and never an increased bleeding. Just because pathological conditions frequently develop on or about the time of the menopause and give uterine bleeding, it is no more a part of the normal physiological change of life than measles or whooping cough are a part of a normal physiological childhood. The point I wish to emphasize is that whenever a woman has increased bleeding there is something wrong. Just as we stated earlier that amenorrhoea is practically always due to conditions outside the pelvis, we can just as emphatically state that increased bleeding is, with very few exceptions, due to some pathology within the pelvis. This erroneous idea of increased bleeding being a symptom of the change of life has been one of the greatest causes of the late recognition of cancer of the uterus and a resulting loss of valuable time.

Frequently when a woman comes complaining of various and sundry pelvic symptoms, the physician when making an examination with the speculum will make a diagnosis of ulcerated cervix or ulcers on the cervix. With the exception of malignancy, the rare cases of syphilis of the cervix and those cases of complete prolapse where contact with the clothing has caused an ulceration, I do not recall having seen a case of true ulceration of the cervix in a period of over twenty-five years devoted to a large extent to gynecology. What then is that condition which is so frequently diagnosed and treated as ulceration of the cervix?

The vaginal surface of the cervix is covered by many layers of squamous epithelium giving a pale red appearance, while the cervical canal is lined by a single layer of columnar epithelium. If you could look into the canal of a normal cervix the appearance would be an angry red, due to the vessels shining through this one layer of epithelium. When, after childbirth or instrumentation there is a laceration of the cervix there frequently results an eversion of the inner lining of the cervix. Therefore, looking at the external os through a speculum, one simply sees the angry red appearance of the normal cervical lining due to the eversion. Normally the junction of the one-layered columnar epithelium and the many layered squamous epithelium is just at the external os. But occasionally even in the nullipara, in whom there has been no instrumentation to injure the cervix, the same condition can be seen to a slight degree. The cause of this so-called "ectropion" of the

cervical mucosa in the nullipara is not known and may be congenital. Touch this circular area of everted mucosa a few times with silver nitrate or some similar caustic, and you have a proliferation of the lining cells giving an appearance somewhat similar to the vaginal surface of the cervix and the ulceration is said to be healed. If the patient be examined a month or so later these newly proliferated cells will have desquamated and the natural color of the normal cervical lining will have returned and the so-called ulceration is said to have recurred. As a matter of fact, this condition requires no topical applications. It is perfectly good treatment to repair the laceration and in that way correct the eversion. If, however, the laceration is not sufficient to justify trachelorrhaphy, then leave the cervix alone.

Leucorrhea is probably the most common symptom encountered in gynecological practice. In many women, both virginal and otherwise, there is frequently just before and just after menstruation and also as a result of anything causing sexual excitement, a hyper-secretion of a normal milky white character, sometimes sufficient to be annoying. This is physiological and does not require treatment any more than does the hyper-secretion of the salivary and gastric glands due to stimulating odors or sight of a delicious meal. Owing to the absence of glands in the body of the uterus and the almost complete absence of glands in the vagina, this secretion comes from the cervix.

Following childbirth or miscarriage, the cervix becomes more or less patulous and frequently secondarily infected by the various non-specific pyogenic organisms of low virulence. It is also in these deeply penetrating, compound, racemose glands that the gonococcus becomes firmly intrenched. You can readily see how absolutely useless local applications or douches would be in such cases. Cauterization of the cervix, trachelorrhaphy, the Sturmdorf operation, or possibly amputation of the cervix are the methods of treatment from which the physician may choose. On the other hand, much has been written recently about two infections which involve primarily the vagina and to a very slight degree the cervix. I refer to the trichomonas and the monilia or yeast infections. The technique of the treatment of these two conditions by various topical applications can be found in any recent standard text book.

During the past few years there has been a wave of enthusiasm in the treatment of practically all leucorrheas by cauterization of the cervix. This treatment in certain selected cases is a very valuable procedure but is being brought into disrepute by its too promiscuous application. In many patients in which cauterization of the cervix does give a partial relief; complete relief could be obtained by some other method as, for instance, the Sturmdorf operation.

It is quite common for the laity and also occasionally for a physician to request a curettment for the treatment of leucorrhea. I feel sure that practically everyone in this audience realizes not only the uselessness but also the danger of curettage in any form of leucorrhea. It would be just about as rational to expect to relieve a deep tonsillar infection by curettage of the tonsil as to expect to relieve involvement of the cervical glands by curettage of the cervix. If we will give more time to dif-

ferentiating the types and causes of leucorrhea, the proper treatment will automatically follow.

Every now and then you will be told either through the mail or more likely by the detail man, of the wonderful virtue of some new endocrine product. A few of the benefits which have been ascribed to the ovarian preparations alone are, that they will cure amenorrhoea; that they will stimulate to growth the underdeveloped genitalia; will lessen the pains of dysmenorrhoea; will control the menorrhagias and metrorrhagias; will ameloriate the disagreeable symptoms of the menopause, both natural and induced; will aid in overcoming sterility; that they are almost a specific in melancholia and certain forms of insanity; that they will control the vomiting of pregnancy; and that they are of great value in psorriasis.

You recall the story of the little boy who told his mother that he had seen a thousand cats in the attic, but upon being closely questioned admitted that there might not have been over a hundred and later reduced the number to ten, and finally admitted that he had seen one black cat.

That is just about where we stand today with the ovarian preparations. It is possible that for the symptoms of a natural or artificial menopause they may be helpful. When we remember, however, that the unpleasant symptoms of the climacteric come in waves and that the patient usually consults the physician at the peak of one of these waves, any drug which may be given them would receive credit for the temporary relief which follows.

Undoubtedly we are just on the threshold of discoveries in endocrinology but at present I fear our therapy is based more on the unsupported statements of pharmaceutical houses than on scientific facts or on proven clinical observations.

I trust that what I said will not be construed as being pessimistic or destructive in character, but progress is best made by discarding the so-called remedies which have been proven fallacious.

President Stevens: The Tellers are ready to report the results of the second ballot. We will now have the report of the Tellers.

Dr. R. L. Carlton: In the second ballot there were 210 votes cast, making 106 votes necessary for election. There was no election.

. . . Cries of "Give us the vote." . . .

Dr. Carlton: The Tellers voted not to do that.

Dr. Paul H. Ringer (Asheville): I move that we ask for the counted vote.

. . . The motion was seconded. . . .

President Stevens: You have heard the motion. It has been seconded. Is there any discussion of it? If not, all in favor please say "aye"; contrary "no." It is carried. The Tellers will report on the official vote.

Dr. Carlton: The vote was as follows:

Woodward	38
Green	61
Smith	90

Walker	67
Davis	37
Tankersley	46
Pittman	64
Northington	25
Averitt	77
Tatum	43
Terry	38
Vernon	100

President Stevens: There is no election. The Tellers will distribute the ballots.

. . . The ballots were distributed for the third ballot. . . .

Secretary McBrayer: Have all voted who wish? If so, the President declares the ballot closed. The Tellers will retire and count the ballots.

President Stevens: The next paper on the program is one that has been prepared by Dr. Shore, Director of the State Laboratory of Hygiene, on "Serum Reactions." Dr. Shore was called home by serious sickness, and the paper will be read by Dr. Cooper also of the State Department of Health.

SERUM REACTIONS

By Dr. C. A. Shore, Director State Laboratory of Hygiene, Raleigh

There are scarcely any accidents which may happen to the physician which are more distressing than those which sometimes result from preventive injections. The reaction in the vast majority of cases is not serious, but at best it is annoying,—both to the patient and the doctor,—to have efforts at disease prevention result in illness, however slight. Then too, serious results, though rare, can occur and even death is a possibility although this is fortunately a most rare occurrence.

I think it is wise, every now and then, to consider the whole subject and try to figure out just what we are doing and just what we are trying to accomplish by our many schemes of disease prevention by means of prophylactic injections.

Perhaps I should state in the beginning that my talk is not intended as an attack on any of the serums which are now in common use. A good part of my work has been and is the encouragement of their use.

However, I believe it is extremely important to realize that there is the possibility of danger in the administration of any medicinal substance, into the human body, by means of hypodermic injections. For instance deaths have occurred following the injection of small doses of neoarsphenamine or of pollen extract (neither of which is a proteid) as well as from the injection of a foreign serum.

Hypersensitiveness in man may be observed following the introduction of many and varied substances, and these substances may be introduced in varied manner,—not only by injection, but through the intestines or by inhalation, or by application to the skin. The degree of reaction is largely a personal idiosyncrasy, but the symptoms, however diverse the agent, have a good deal of similarity.

It has been proposed that the term allergy be used to define a natural hypersensibility, while the word anaphylaxis be reserved for the increased sensibility which may be produced by a previous injection. As we all know natural hypersensibility is not at all infrequent and it is also common knowledge that allergic manifestations are hereditary or at least familial.

The second form of hypersensitiveness, or anaphylaxis, is extremely easy to produce in experimental animals such as guinea pigs, but fortunately it is very difficult to produce in human beings. However, there is an occasional exception and apparent examples of true anaphylaxis in man have been reported, but such cases are extremely rare. There is good reason to believe that it is possible to artificially sensitize only those individuals who have an allergic heredity, or at least that the degree to which a normal human individual can be sensitized is of no importance.

Serum reactions in man may be divided in four types. 1. The symptom complex now known as "serum sickness." The most common symptom of serum sickness is a rash which usually appears between the third and eighth day following the injection, although rarely it occurs earlier or later. The rash may be accompanied by fever, by enlargement of the lymph glands and by severe pains in the joints. Serum sickness is an annoying, uncomfortable and sometimes even an alarming disease, but I believe that I am correct in stating that it is never fatal. It has been estimated that serum sickness—if we count the mild cases as well as the severe ones—occurs in ten per cent of those receiving injections.

The second type of reaction is a more or less sudden collapse, which may at times be fatal, and this is fortunately far more rare. Dr. Park has estimated that collapse follows serum injection in one case out of every twenty thousand injected and that death occurs in one case in every fifty thousand injected. When death occurs it is almost always after a first injection.

The third type which is as rare or even more rare than the second, is a local necrosis around the area of injection.

In these rare cases of necrosis a hard red area develops and this quickly breaks down and sloughs off. It is not due to bacterial contamination, but a secondary contamination invariably results and there is always considerable delay in healing. It can occur as a result of injection of any foreign proteid and it has occurred from rabies vaccine injection. That is one case in about twenty thousand hypodermic injections of rabies vaccine. Rare as this reaction is, it is sufficient to make the rule never to inject any foreign serum in the breast region in women.

A fourth type,—perhaps rarest of all,—should be recognized and it consists of a peripheral nerve paralysis. Dr. Forrest Young, writing in the *Journal A. M. A.*, April 2, 1932, could find only fifty cases in the literature and they were chiefly in France. If we include rabies vaccine paralysis, we get many more. The rabies vaccine is not a serum, but it is a foreign proteid and most investigators believe that the paralysis, which occurs is due to this proteid and not to the rabies virus. From

the records reported to the International Conference on rabies this complication occurs once in every ten thousand patients treated. As each patient receives from fourteen to twenty-one injections, the paralysis, therefore, would occur less than once in every one hundred and fifty thousand injections.

Now the record of all possible accidents which might result sounds very formidable when we enumerate them, but it is obvious to all that the good results far outweigh the bad. We can no more discontinue the use of all serums than we could discontinue the use of anaesthetics, because there is an occasional death from anaesthesia. It is imperative that we must continue to use foreign serums for hypodermic injections, and our efforts at present should be directed toward the elimination of all accidents.

As I see it there are at present three ways by which the subject can be approached. The first is by putting out serums which are concentrated to the highest possible extent. This is being done not only by the public health laboratories, but by the commercial laboratories as well.

It is inevitable that among two thousand five hundred doctors, there should be individual preferences for different makes of serums. It is my frank belief that there is little or no demonstrable difference between these products. Serum sickness can and does result from the use of any of them. The methods of manufacture are practically the same in all cases and I think there is no patent for any of the processes of manufacture. The finished product of all the tetanus and diphtheria antitoxins used in this country contains, in reality, only a minute quantity of the original horse serum. The scarlet fever antitoxin is not quite so concentrated, but the scarlet fever antitoxin now obtainable is more highly concentrated than was the first product put on the market. It is interesting to note that in France and several other European countries unconcentrated antitoxins and serums are still widely used. No doubt the milder forms of serum sickness are common, but I doubt if the fatal forms of reaction are increased.

The second method of approach, a method at present widely discussed, would be through the substitution of diphtheria toxoid for diphtheria toxin-antitoxin. The toxin-antitoxin contains an infinitesimal amount of horse serum but there are many people who believe that this serum—extremely small though it is—is yet sufficient to induce a mild anaphylaxis. For myself, I am confident that this danger has been very greatly exaggerated, but if it exists at all it can be obliterated by the substitution of the toxoid, which contains no serum at all.

The third and most important method of prevention of the accidents following serum injections, is to be careful about whom we inject, and we should never carelessly give an injection of serum to a patient with a history of allergy or one with an allergic heredity. I believe that an attempt should be made in each case to secure a history. If the patient is subject to hay fever, or asthma, or if there is history of unusual food reactions or if there is a family history of allergy the doctor should be on guard and a large dose of serum should not be injected into such an individual until test injection is first made. There are two

methods of giving these tests, one is by injection and the other is by instillation of a drop of the serum into the eye.

If the injection method is used, a small amount of the serum should be diluted 1:10 and 0.1cc of this serum should be injected *intracutaneously*. A positive reaction consists of the development, within twenty minutes, around the point of injection, of a definite wheal, which is considerably larger than the original wheal which forms immediately with almost any intracutaneous injection. Some physicians prefer to test every patient before injection. If there is no suggestive personal or familial history, the test injection may be as large as one minim subcutaneously.

This skin test, while not absolute, is a fairly accurate indication of hypersensitivity and the eye test is considered still better. In this test one drop of the undiluted serum (or serum diluted not more than 1:5) is dropped into the eye. The test can not be used on crying children both because crying reddens both conjunctivae so that comparisons are difficult, and also because much of the serum may be washed out by the tears. With the eye test, it is important that epinephrine be available for immediate use in those rare cases, which give a positive reaction.

While neither of these tests is absolute they are nearly so, but since they are not absolute the possibility of severe reaction must still be considered and if an allergic history has been obtained, we should not take the chance even if the test be 99% perfect.

If it is deemed necessary to administer serum to such a suspected person, it should be given in divided doses. The first dose should be not more than 0.05cc subcutaneously. An allergic patient should never be given an intravenous injection of any foreign serum. The doses should be gradually increased by doubling and given every fifteen or twenty minutes, until a slight reaction indicates that the limit of tolerance has been reached or until sufficient serum has been given.

It must be stated that desensitization in humans is not so easy to produce, as it is in laboratory animals and when we have a sensitive patient we can never be sure enough of desensitization to permit careless injections of serum.

While pollen extracts are not serums, it is well known that in a sensitized patient, their injection may be fatal. Duke has described a safe method of administering these pollen extracts to hypersensitive individuals.

In this method he mixes epinephrin and ephedrin with the pollen vaccine and applies a tourniquet above the site of injection and is careful to avoid puncture of a vein. He takes two parts of a three per cent ephedrin solution to one part of a 1:1,000 epinephrine solution. To 0.15cc of this mixture he adds 0.3cc of the pollen extract and injects slowly. The absorption is controlled by loosening and tightening the tourniquet. It is claimed that this method has been satisfactorily adapted to serum injections although larger quantities of the latter are needed. This method might also be used in desensitization, but desensitization apparently has no effect on the mild and late forms of serum sickness.

I would like to close with a quotation from an article published re-

cently in the Reports of the United States Public Health Service, which is as follows:

"It is of the utmost importance to realize that the administration of a foreign serum by any hypodermic injection method is not entirely free from danger. The frequency of serum sickness and the less frequent occurrence of more serious developments following serum therapy is of sufficient moment to cause the observing clinician to weigh carefully the consequences before adopting such a method. The therapeutic results must definitely outweigh the reaction produced, or the chance of more serious complication."

The statements in the quotation are altogether true and the lesson should be, not to deny serums to those who need them, but to be on the lookout for hypersensitive patients.

President Stevens: The next address is by Dr. Smith of Charlotte on "Eye Conditions of General Interest." Dr. Smith!

. . . Dr. Smith was not present. . . .

President Stevens: If Dr. Smith is not in the audience, we will pass on to the next paper, "Diverticula of Duodenum," by Dr. B. E. Rhudy of Greensboro.

DIVERTICULA OF THE DUODENUM

By B. E. Rhudy, M.D., Greensboro

The increasing frequency with which diverticula of the duodenum are being found, in the course of routine X-ray examination of the gastro-intestinal tract, provokes study of the diagnostic signs of this lesion. Diverticula of the gastro-intestinal tract, relatively speaking, are not rare; diverticula of the oesophagus, stomach, duodenum, jejunum, ileum and of the large intestine are being found and reported. Diverticula may be single or multiple, small or large; they are less frequent of the upper tract than of the lower. It is a rare condition of the stomach but does occur, chiefly on the posterior wall close to the lesser curvature of the pars cardia, and in such a position that they are, as a rule, difficult to deal with surgically; however, they probably give more symptoms, and because of the inherent tendency of irritative lesions of the stomach to become malignant, and especially since at least three cases of carcinoma developing in diverticula of the stomach have been reported, the condition when found, if accessible, undoubtedly should be treated surgically.

I wish particularly to call attention to diverticula of the duodenum. While diverticula of the urinary bladder, of the oesophagus, and Meckel's diverticulum have been recognized and dealt with according to the apparent symptoms and accessibility, diverticula of the duodenum, I believe, have never been given the consideration they deserve, that they are, in certain cases, a real entity.

As far back as 1761 Morgagni described and demonstrated on the cadaver the condition known as diverticulum of the duodenum. Baldwin, in 1911, had collected 76 cases from the literature and added fifteen that he had found in 105 necropsies. This is a high incidence of 14% in routine autopsies.

Nagel reported a frequency of 2.2% in a large series of necropsies.

Dr. James Case, I believe, was the first to observe these pouch-like projections in the wall of the duodenum roentgenologically, and in 1913 reported four cases; he later, in 1920, reported eighty cases in 6,847 routine roentgenological examinations, or 1.1%. Larrimore and Graham found only 19 in a series of 3,446 examinations of the gastro-intestinal tract. Therefore, we must conclude that this condition is found more frequently in routine autopsies than are found in routine X-ray examinations, and that many are being overlooked or not recognized.

Classification: Diverticula are classified as congenital and acquired, each of which is subdivided into true and false.

Location: Most diverticula are located in the second portion of the duodenum, mesenteric border, in close proximity to the ampulla of Vater; next in frequency is the third portion while it is rarely found in the first or ascending portion.

Diverticula of the first portion are usually acquired and are secondary to, or the result of, an inflammatory process such as an ulcer with periduodenal adhesions although they are apparently not directly involved in the inflammatory process. Diverticula of the second portion are of greatest frequency and may be either congenital or acquired; although congenital, this does not necessarily mean that it is immune to producing symptoms. The acquired type is most probably due to pressure within the bowel; adhesions take place; there is contraction of the tissue about the inflammatory process, and a hernia occurs; only the mucous and serous coats remain intact; ulceration and perforations have been reported.

Diverticula vary in size usually from not more than one cm. to eight cm. in diameter, but are capable of becoming much larger. They are usually single, however, they may be multiple.

I have found in some of these cases also diverticula of other parts of the tract, especially of the distal portion of the colon. They may have a comparatively small opening into the bowel or they may have a wide ostium. They may occur at any age, but are more commonly found in patients of middle age or past. Of my own cases the youngest was 37 years old and the oldest was 64, two of which were sisters. There was about an equal number of males and females and in routine roentgenological studies of the gastro-intestinal tract in the last three and one-half years, the percentage of these cases found has been 3.6%.

Symptomatology: Up to the present there are no classical symptoms of this condition recognized; however, patients may have complaints simulating that of gall-bladder disease or that of peptic ulcer, may have pain which varies in type and intensity; it may be severe and associated with a sense of fulness and distention; definite and constant soreness may be present and if so the patient can usually place his finger directly over the lesion. History of pain and soreness not infrequently has extended over a period of many years; one would not expect the "pain, food-relief" syndrome sometimes obtained in duodenal ulcer. Of course if the diverticulum is large and there is retention, the patient may give history of being relieved by vomiting; this could be easily confused with that of obstruction and certainly would call for investigation. It should also be thought of or suspected in cases who have had exploratory operations with only the appendix removed, and in which the symptoms

have recurred almost immediately after their return to their routine mode of living. Symptoms may point to the condition, but careful and diligent fluoroscopic study, both in the vertical and horizontal positions, also roentgenograms after the patient is carefully positioned to the best advantage, are necessary before the conscientious examiner will be able to say that this condition does or does not exist.

The common practice, prevalent in some of the large clinics, of doing fluoroscopy only in the vertical position, and in recent years many internists have been induced to install fluoroscopic units, practically all of the vertical type, with which they may make only limited examinations, probably accounts for this condition not being more universally recognized.

The chief factors in the diagnosis of duodenal diverticula are:

To look for the lesion.

To consider all cases that come in for study from a clinical standpoint, remembering that you are a physician who is specializing in roentgenological diagnosis, and not a mere technician.

A knowledge of the symptoms and pathology of this and other symptoms.

Careful and also repeated study of many of these cases in order to make a differential diagnosis.

A thorough knowledge of the roentgen appearance of these lesions so as to be able to recognize the condition when observed.

President Stevens: We will now have the report of the Tellers.

. . . The Tellers reported as follows (Third Ballot):

Woodward	15
Green	40
Smith	64
Walker	30
Davis	24
Tankersley	41
Pittman	41
Northington	13
Averitt	61
Tatum	28
Terry	35
Vernon	110

Total number of votes cast 173; necessary to elect 87. We declare Vernon elected; only one out of the three.

Another ballot, fourth ballot was taken—Vote for 2.

President Stevens: We still have a couple of papers on the program. Next we will hear the "Report of a Case of Paresis Treated with Therapeutic Temperature Produced by High Frequency Current," by Dr. J. R. Alexander of Charlotte.

. . . Dr. Alexander was not present. . . . .

President Stevens: If he is not in the room, we will again call for the address on "The Hand" by Dr. Gaul of Charlotte.

. . . Dr. Gaul was not present. . . .

President Stevens: We will have the report of the Board of Medical Examiners by Dr. J. W. MacConnell, secretary.

REPORT OF THE BOARD OF MEDICAL EXAMINERS FROM APRIL, 1931-APRIL 15, 1932

This is the final report of the Board of Medical Examiners, though the next report will be made conjointly with the incoming Board.

The past year's work has been pleasant and marked by no unusual procedures. There has been a decrease in the number of physicians applying for license in North Carolina by reciprocity or endorsement of credentials. This is due, no doubt, to the economic situation which makes physicians hesitate before moving into a new territory. The character of the men licensed during the past year has been of a high type and we feel sure that all the new licentiates will be an honor to the profession in North Carolina.

In making this the final report for the Board of Medical Examiners, I wish to state that we have received throughout our entire term of office hearty coöperation from the successive presidents of the State Medical Society and from the efficient secretary, Dr. L. B. McBrayer. We have also had all necessary and hearty support from the regular members of the profession.

The most disagreeable feature of the work of a Board of Medical Examiners is not the holding of examinations for the young physicians, but is in the necessary cases of discipline against licensed members of our profession and against quacks and irregular practitioners. It is not an easy matter to revoke a license once it has been issued. There are certain defects in our present law on this question and certain amendments to our Medical Practice Act are necessary for the smooth working of our Enforcement Act. We receive more complaints concerning irregular practitioners from the western part of the state than from any other section. This is not due to any lowering of standards among the qualified practitioners but is due to a situation which arose in the isolated districts of the mountain section years ago when means of communication were primitive. We find, however, that these cases of violation are due more to ignorance than to wilful misrepresentation or true quackery. In fact, we earnestly believe that there are fewer charlatans who are bent on robbing the poor and ignorant people in this state than in many other states. Thus we find that many of these unqualified men in the isolated mountain districts are really earnest in their endeavor to relieve suffering, but through deficient education are really not capable of rendering modern medical service. The improvement in the hospital situation, however, will in time remedy this. Therefore our Board has not been bent on criminal prosecution of these men, so much as it has endeavored to correct a situation which arose through no fault of the profession itself.

In making this final report we wish to thank all those who have cooperated with us in trying to uphold a high standard in our profession and we would bespeak for the new Board a continuation of this support. Also to the new Board we, the retiring members of the present Board of Medical Examiners, pledge our hearty support and offer the benefits of our experience if needed.

Signed:

JOHN W. MACCONNELL, M.D., Secretary.

THE FOLLOWING WERE LICENSED BY EXAMINATION
JULY 6, 1931
SIR WALTER HOTEL, RALEIGH, N. C.

No.	Name	Address	Preliminary Education	Medical College	Year	Grade
4330	Alexander, John Eugene (C)	204 Flint St., Charlotte, N.C.	A.B. 1925, Livingstone College	Meharry	1930	80
4331	Baker, Thomas Williams	Ahoskie, N. C.	B.S. 1927, Wake Forest	Univ. Penn.	1931	91 3/7
4332	Ball, Charles Lightfoot, Jr.	Route No. 1, Elizabeth City, N.C.	B. S. 1929, U. N. C.	Jefferson	1931	88 6/7
4333	Beall, Lawrence Lincoln	Durham, N. C.	B. A. 1927, Duke Univ.	Med. Col. Va.	1931	87
4334	Bowling, Jackson Murrell	Durham, N. C.	A. B. 1928, Duke Univ.	Med. Col. Va.	1931	87 2/7
4335	Bunch, Charles	2214 E. 7th St., Charlotte, N. C.	3 years, Univ. N. C.	Med. Col. of. S. C.	1931	89 4/7
4336	Busby, Julian	Salisbury, N. C.	A. B. 1927, Univ. N. C.	Johns Hopkins	1931	86 3/7
4337	Carnes, George Warrenton (C)	507 S. 7th St., Wilmington, N. C.	A. B. 1919, Morris Col.	Meharry	1927	80
4338	Cashwell, Roy Lee	Hope Mills, N. C.	B. S. 1929, Univ. N. C.	Univ. Md.	1931	86 3/7
4339	Clark, Albert Henry (C)	Box 73, Greensboro, N. C.	B. S. 1924, Agri. & Tech. Col. Greensboro, N. C.	Meharry	1928	83 2/7
4340	Cloninger, Kenneth Lee	Claremont, N. C.	B. S. 1929, Univ. N. C.	Univ. Md.	1931	85 4/7
4341	Collins, John Elwood	Linden, N. C.	B. S. Med. 1929, Wake Forest	Med. Col. Va.	1931	88 2/7
4342	Daughtridge, Giffin Caswell	R.F.D. No. 4, Rocky Mount, N.C.	B. S. 1929, Univ. N. C.	Univ. Penn.	1931	87 6/7
4343	Dick, Alexander Colclough	Chapel Hill, N. C.	1 Yr. Univ. Va., 2 Yrs. U. N. C.	Univ. Penn.	1931	90
4344	Farrell, Harry Lawrence	Mebane, N. C.	B. S. 1929, Univ. N. C.	Univ. Penn.	1931	93
4345	Faulk, James Grady	Unionville, N. C.	Cert. in Med. 1929, Wake Forest	Med. Col. Va.	1931	88 3/7
4346	Fleming, Laurence Edwin	822 E. Third St., Charlotte, N. C.	B. S. Med. 1929, Wake Forest	Univ. Penn.	1931	89 6/7
4347	Fulghum, James Elijah	Louisburg, N. C.	Cert. Med. 1929, Wake Forest	Med. Col. Va.	1931	89
4348	Gardner, Shockley DeWitt	413 Magnolia St., Goldsboro, N.C.	Cert. Med. 1928, Wake Forest	Med. Col. Va.	1931	85 1/7
4349	Giles, Junius Albion	Chapel Hill, N. C.	B. S. Med. 1929, Univ. N. C.	Univ. Penn.	1931	90 3/7

No.	Name	Address	Preliminary Education	Medical College	Year	Grade
4350	Glenn, Eugene Byron	Asheville, N. C.	A. B. 1927, U. N. C.	Jefferson	1931	90 2/7
4351	Glover, Francis Overstreet	Salisbury, N. C.	B. S.—A. B. 1924, Univ. N. C.	Univ. Penn.	1928	82
4352	Green, Southgate Jones	404 W. Chapel Hill St., Durham, N. C.	B. S. 1927, B. S. Med. 1929, Wake Forest	Jefferson	1931	90 5/7
4353	Hackney, James Franklin	Bynum, N. C.	2 Yrs. U. N. C.	Tulane	1931	93 3/7
4354	Hamblen, Edwin Crowell	University Hosp., University, Va.	B. S. 1921, Univ. Va.	Univ. Va.	1928	92 5/7
4355	Harris, William Gibson	Gibson, N. C.	A. B. 1926, B. S. Med. 1929, Wake Forest	Tulane	1931	94
4356	Hedgepeth, Edward McGowan	Elm City, N. C.	A. B. 1927, Univ. N. C.	Univ. Penn.	1931	89 1/7
4357	Helsabeck, Belmont Augustus	Rural Hall, N. C.	2 years, Lynchburg Col.	Med. Col. Va.	1931	87 5/7
4358	Holmes, George Washington	3 E. Devonsh ire St., Winston-Salem, N. C.	A. B. 1926, Duke Univ.	Med. Col. Va.	1931	91
4359	Holoman, Mahlon Browne	Weldon, N. C.	B. A. 1926, B. S. Med. 1928, Syracuse Univ.	Syracuse Univ.	1930	89 1/7
4360	Kent, Alfred Abraham, Jr.	Lenoir, N. C.	B. A. 1930, Duke Univ.	Jefferson	1931	90 3/7
4361	Koonce, Edward Everett	1709 Princess St., Wilmington, N. C.	3 Yrs. U. N. C.	Univ. Penn.	1931	88 1/7
4362	Lancaster, Newton Faris	Hendersonville, N. C	A. B. 1927, King College	Med. Col. Va.	1931	86 2/7
4363	Laughrum, William Gus	Wallius, Ky.	B. S. 1924, Carson Newman	Univ. Louisville, Ky.	1929	82 2/7
4364	Lennon, Hershel Clanton	210 N. 6th St. Wilmington, N. C.	B. S. 1927, Wake Forest	Univ. Penn.	1931	87 4/7
4365	Leseur, Robert (C)	425 Moore St., Fayetteville, N. C.	B. S. 1922, A. & T. Col., Howard Univ. 1923-1926	Meharry	1930	89 3/7
4366	McDowell, Harold Clyde	Cherryville, N. C.	B. S. 1925, B. S. Med. 1929, Wake Forest	Jefferson	1931	86 3/7
4367	McDowell, William Kitchin	Scotland Neck, N .C.	B. S. Med. 1929, Wake Forest	Jefferson	1931	86 2/7
4368	McLeod, Vida Canady (F)	Southern Pines, N. C.	1 Yr. Southern Methodist Univ.	Baylor Univ. Med. Col.	1919	84 1/7
4369	Maddrey, M. Crocker	Seaboard, N. C.	B. S. 1927, B. S. Med. 1929, Wake Forest	Jefferson	1931	94 3/7
4370	Marshall, James Flournoy	Spray, N. C.	A. B. 1927, U. N. C.	Univ. Penn.	1931	94 3/7
4371	Mayfield, Francis Henderson	Norlina, N. C.	2 Yrs. U. N. C.	Med. Col. Va.	1931	86 1/7
4372	Monroe, Robert Francis	Hamlet, N. C.	B. S. Med. 1929, Univ. N. C.	Washington Univ.	1931	87 5/7
4373	Moore, Laurie Walker	Marshallberg, N. C.	B. S. Med. 1929, Wake Forest.	Med. Col. Va.	1931	87 2/7

4374	Moore, Roy Hardin	Waynesville, N. C.	B. S. Med. 1929, Univ. N. C.	Washington Univ.	1931	90 5/7
4375	Morgan, William Gardner	Benson, N. C.	A. B. Univ. N. C.	Univ. Penn.	1931	90 5/7
4376	Muldrow, Miriam Naomi (C) (F)	Box 335, Chadbourn, N. C.	3 Years, Howard Univ.	Howard Col. of Med.	1930	88 4/7
4377	Mullen, Francis Newby, Jr.	South Mills, N. C.	A. B. 1927, Univ. N. C.	Univ. Penn.	1931	83 5/7
4378	Owen, Robert Harrison	Canton, N. C.	B. S. 1928, Wake Forest	Univ. Penn.	1931	87 2/7
4379	Palmer, Yates Shuford	Lawndale, N. C.	2 Yrs. U. N. C.	Med. Col. Va.	1931	83 3/7
4380	Paschal, George Washington, Jr.	Wake Forest, N. C.	B. A. 1927, B. S. 1928, B. S. Med. 1929, Wake Forest	Jefferson	1931	89 2/7
4381	Peacock, Arthur Bigelow	118 South St., Raleigh, N. C.	B. A. 1927, B. S. Med. 1929, Wake Forest	Jefferson	1931	95
4382	Redding, John Oscar, Jr.	Asheboro, N. C.	A. B. 1927, Duke Univ.	Univ. Penn.	1931	92 1/7
4283	Redwine, James Daniel	506 N. Main St., Salisbury, N. C.	3 Yrs. U. N. C., A. B. Duke Univ.	Emory	1931	86 2/7
4384	Robbins, Clayton Asa (C)	Ahoskie, N. C.	B. S. 1925, Shaw Univ.	Howard Univ.	1930	81
4385	Ruark, Robert James	1610 Jarvis St., Raleigh, N. C.	A. B. 1928, Duke Univ.	Univ. of Penn.	1931	90 3/7
4386	Sikes, Charles Henry	N. C. Bank & Trust Building, Greensboro, N. C.	B. S. Med. 1929, Univ. N. C.	Jefferson	1931	87 3/7
4387	Slate, Marvin Longworth	117 Brentley Circle, High Point, N. C.	A. B. 1926, Wake Forest	Univ. Md.	1931	89 3/7
4388	Smith, Daniel Lesene, Jr.	Saluda, N. C.	B. S. 1927, Citadel	Med. Col. S. C.	1931	82 1/7
4389	Smith, Frank	Oxford, N. C.	3 Yrs. U. N. C.	Richmond Med. Col.	1931	85 6/7
4390	Smith, Keitt Hane	Saluda, N. C.	A. B., Wofford	Med. Col. S. C.	1931	85 6/7
4391	Starling, Howard Montfort	Hubert, N. C.	3 Yrs. U. N. C.	Med. Col. Va.	1931	89 3/7
4392	Stephenson, Thomas Jefferson	Seaboard, N. C.	B. S. 1928, B. S. Med. 1929, Wake Forest	Univ. Penn.	1931	89 2/7
4393	Stroupe, Albertus Ula, Jr.	Mount Holly, N. C.	B. A. 1926, B. S. 1929, Wake Forest	Med. Col. Va.	1930	83 3/7

No.	Name	Address	Preliminary Education	Medical College	Year	Grade
4394	Sullivan, Victor Thaddeus	Wilmington, N. C.	B. S. 1927, Wake Forest	Med. Col. Va.	1931	88
4395	Tew, Cloyce Robert	10 Seawell Ave., Raleigh, N. C.	B. S. 1927, B. S. Med. 1929, Wake Forest	Johns Hopkins	1931	95
4396	Thompson, Heyword Chevis	Shelby, N. C.	A. B. 1928, Duke Univ.	Tulane	1930	91 2/7
4397	Walton, Cyrus Leslie	Jacksonville, N. C.	B. S. 1924, N. C. State	Med. Col. Va.	1931	88 6/7
4398	Ward, Wallace Clyde	Ryland, N. C.	Cert. Med. 1929, Wake Forest	Univ. of Louisville, Ky.	1931	84 2/7
4399	Whims, Harold Carter	Wake Forest, N. C.	B. A. Med. 1929, Wake Forest	Univ. Md.	1931	84 3/7
4400	Williams, John Dudley, Jr.	Liberty, N. C.	A. B. 1926, Western-Maryland Col.	Temple Univ.	1930	89 3/7
4401	Wilson, Roeby Bryant	202 Westwood Place, Asheville, N. C.	B. S. Med. 1929, Wake Forest	Univ. of Louisville, Ky.	1931	92 3/7
4402	Wilson, Stephen Glenn	Newton Grove, N. C.	U. N. C. 2 Yrs. pre-med.—2 Yrs. Medicine	Med. Col. Va.	1930	89 2/7
4403	Young, David Alexander	529 N. Person St., Raleigh, N. C.	A. B. 1928, U. N. C.	Harvard Med. School	1931	94 2/7
4404	Ferrell, Thomas Joseph	Rocky Mount, N. C.	Macon Univ.	Univ. Ga.	1928	End.Ga.

THE FOLLOWING WERE LICENSED BY ENDORSEMENT OF CREDENTIALS
JUNE 15, 1931
SIR WALTER HOTEL, RALEIGH, N. C.

No.	Name	Address	Preliminary Education	Medical College	Year	End.
4316	Carter, Francis Bayard	University Park, University, Va.	B. A. 1920, Univ. Delaware	Johns Hopkins	1925	Va.
4317	Davis, Theodore McCann	Crowell Clinic, Charlotte, N. C.	High School	Univ. Md.	1914	S. C.
4318	Eley, Vernon Lyndon	Suffolk, Va.	Cert. U. N. C. 1917	Jefferson	1922	Va.
4319	Griffin, Harold Walker	Hickory, N. C.	B. S. Med. 1921, Emory	Emory	1923	Ga.
4320	Jones, Catesby ap Catesby	34 Westcherter Drive, Asheville, N. C.	A. B. 1891, Univ. Alabama	Baltimore Med. Col.	1893	
4321	Lanshe, Harold F.	801 N. 2nd St., Harrisburg, Pa.	High School	Univ. Penn.	1917	Penn.
4322	Parker, Wade Thomas	Fayetteville, N. C.	Collegiate	Med. Col. S. C.	1928	S. C.
4323	Persons, Elbert Lapsley	Duke Univ. Hosp., Durham, N.C.	A. B. 1923, Ohio State Univ.	Harvard	1927	Nat. B.
4324	Phillips, Paul Acberus	Springfield, S. C.	Collegiate	Bellevue Hospital, Med. Col., N. Y.	1891	S. C.
4325	Prefontaine, J. Edouard	117 W. Sycamore, Greensboro, N. C.	B. A. 1922, Univ. Manitoba	Laval Univ.	1929	
4326	Riser, Luther Allen	Greensboro, N. C.	B. A. 1900, Newberry Col. M. D. Univ. of Md. 1908	Tulane	1912	S. C.
4327	Russell, William Marler	Cincinnati Gen. Hospital, Cincinnati, Ohio	Univ. of N. C.	Univ. of Cincinnati	1928	Ohio
4328	Wagner, George Arthur	117-13 Blvd., Rockway Beach, N. Y.	Collegiate	N. Y. Univ. and Bellevue Med. Col.	1920	N. Y.
4329	Winkler, Harry	17th Floor 1st Nat'l Bank Bldg., Charlotte, N. C.	B. S. 1921, Univ. Chicago	Rush Med. Col.	1928	Ill.

THE FOLLOWING WERE LICENSED BY ENDORSEMENT OF CREDENTIALS
DECEMBER 7TH
SIR WALTER HOTEL, RALEIGH, N. C.

No.	Name	Address	Preliminary Education	Medical College	Year	End.
4405	Barrier, Henry W.	Concord, N. C.	Weaver Col. 1913	Chicago Med School	1921	Ill.
4406	Chappelle, LeRoy Palmer	1208 Harden St., Charlotte, N. C.		Northwestern Univ. 1927	1927	Ill.
4407	Combs, Fielding	Med. Arts Bldg., Roanoke, Va.	Richmond College, 3 Years	Med. Col. Va.	1923	Va.
4408	Deason, Virgil Absalom	Logan, W. Va.	Univ. Ala., Bachelor in Med.	Univ. of Louisville	1927	Ky.
4409	Irmen, Felix Arnold	Highland Hosp., Asheville, N. C.	Collegiate	Geo. Wash. Univ.	1911	Comm. on Linensure Healing Arts Practice Act.
4410	King, Robert Rogers	Judsonia, Ark.	Wentworth Mil. Academy 1899–1902	Univ. Ark.	1906	Ark.
4411	Kremer, Charles Ernst, Jr.	220 Essex Ave., Narberth, Penn.	Harvard 1923-25	Harvard	1929	Nat. Board
4412	McBryde, Angus Murdock	Duke Hosp., Durham, N. C.	Davidson Col. M. D., Univ. of Penn.	Univ. of Penn.	1928	Nat. Board
4413	Shepherd, Thomas Scott	The Ark, Southern Pines, N. C.	Academic	Univ. of Edinburgh	1900	British Med. Docilf
4414	Smith, David Tillerson	Duke Hosp., Durham, N. C.	A. B. Furman Univ.	Johns Hopkins	1922	Nat. Board
4415	Teague, Francis Bailey	Martinsville, Va.	Collegiate	Univ. Md.	1927	Md.
4416	Walker, Thomas Tipton	Duke Hosp., Durham, N. C.	Collegiate	Harvard	1929	Nat. Board
4417	Ware, Ford	Americus, Ga.	High School	Univ. of Ga.	1912	Ga.
4418	Williams, George Edgar	Connelly Springs, N. C.	Collegiate	Iowa State	1897	Iowa
4419	Wood, Frank	Edenton, N. C.	B. S. Med. 1926, Univ. of N. C.	Univ. N. C.	1928	Nat. Board

PRESIDENT STEVENS: The Tellers are ready to report on the Fourth Ballot.

DR. CARLTON: The Fourth Ballot is as follows:

Woodward	00
Green	42
Smith	55
Walker	21
Davis	10
Tankersley	20
Pittman	28
Northington	11
Averitt	68
Tatum	9
Terry	20

Total number of votes 146; necessary to elect 74. No election.

DR. J. T. HOGGARD (Wilmington): I move that all but the four highest be dropped from the roll and that we vote on those.

. . . The motion was seconded. . . .

PRESIDENT STEVENS: It has been moved and seconded that all names except the four receiving the highest number of votes be dropped from the list. Any discussion? All in favor of that motion please say "aye"; opposed "no." It is carried.

DR. CARLTON: The four highest are: Green 42, Smith 55, Pittman 28, Averitt 68. Vote for two, gentlemen.

PRESIDENT STEVENS: The ballots are to be marked for two of the four names mentioned.

. . . The ballots were then distributed for the Fifth Ballot. . . .

SECRETARY MCBRAYER: Now read the four names again.

DR. CARLTON: Green 42, Smith 55, Pittman 28, Averitt 68.

SECRETARY MCBRAYER: Vote for two.

DR. CARLTON: If anybody voted previous to this last statement, cast aside the vote if you want to vote differently.

Gentlemen, we desire that you all vote anew. We will give you new ballots. Vote for two of the four named.

SECRETARY MCBRAYER: I understand that some of them can't hear. The four men now before the House to be voted on are: W. H. Smith, K. G. Averitt who is highest (W. H. Smith is next), W. W. Green, and R. L. Pittman, the lowest one with 28. Don't vote for anybody else except one of those four.

DR. RINGER: No previous ballots count. Vote new ballots all around.

. . . The members then balloted. . . .

SECRETARY MCBRAYER: The President asks me to announce that the ballot is closed. The Tellers will please retire and count the ballots and report back promptly.

DR. HOGGARD: Mr. President, I move you, sir, that in the event of no election or only one election this time, that the low man be dropped in the succeeding ballot.

. . . The motion was seconded. . . .

PRESIDENT STEVENS: You have heard the motion of Dr. Hoggard to the effect that if there is no election on this ballot or if only one is elected, that the lowest one of the three be dropped. Any discussion? If not, all in favor of the motion please say "aye"; those opposed "no." The motion is carried that in the event of no election this time or only one member being elected, it is voted that the lowest man be dropped.

. . . After a brief interval the Tellers returned. . . .

PRESIDENT STEVENS: The Tellers are now ready to report on the fifth Ballot.

DR. PACE: Mr. Chairman, the fifth ballot resulted as follows: Total vote 108; necessary to elect 55. Elected Smith with 64 votes, and Averitt with 77 votes. (Applause) The seven members of the State Board of Medical Examiners elected are: F. Webb Griffith, J. W. Vernon, Hamilton McKay, Dan Hackney, B. J. Lawrence, W. H. Smith and K. G. Averitt.

THE HAND

J. S. GAUL, M.D., Charlotte

(Read by title)

It is difficult to determine which part of the anatomy is the most essential in the human economy. The hand, seems to me, ranks quite high.

The hand must be considered in connection with the rest of the upper extremity, which has been designed, and functions solely in the interest of developing the greatest use of the hand. From its primary design for prehensile grasping and climbing functions, the hand has evolved into an intricate and highly developed member with diverse functions. Man is the only species with the ability to approximate the thumb and fifth finger. This function makes the thumb a very highly important digit in the uses to which the hand is put, and is a function demanding preservation.

It is very remarkable that a so highly important member as the hand should receive so little consideration when being treated for the pathological insults inflicted on it, and which are so apt to result in dire calamity, particularly to those individuals whose very independent economic existence depends on the full function of the hand.

In my opinion the groups who award compensation damages, and fix the fees for the professional care of these pathological conditions, do not sufficiently appreciate their gravity and the meticulous care necessary in their treatment. I believe proper compensation will do much to stimulate greater interest in this subject, improve the present status of treatment and result in much better residual functional results.

We will consider the pathology affecting the hand as extrinsic, or that located in some part other than the hand, but having a profound influence in producing disability in the hand, and the intrinsic, or that located in some part of the hand itself.

EXTRINSIC

The extrinsic conditions may be classed under injuries, congenital defects, and disease. These as in the intrinsic conditions, may involve

the nervous system, the osseosus system, the circulatory system, the lymphatic system, and the muscles, fascia, ligaments and tendons. In general, however, it may be said, most of the extrinsic conditions affect the hand through their interference with function of the peripheral nerves, muscles, and tendons which activate it. Classed as extrinsic factors are cardiac and pulmonary lesions, producing clubbing of the fingers with deposit of fibrous tissue in the pulp, resulting in loss of sensation; aneurysm of the brachial and subclavian arteries, and cervical ribs which involve the brachial plexus and are often reflected in the hand by disturbances of sensation and motor power; circulatory diseases, such as Bergeur's Disease, Raynaud's Disease and arterio sclerosis are often first manifested in the hand. Infections, adhesions, fibrosis, incised wounds, contracting scars, fractures, new growths, and deformities in the upper extremity. Infantile, diphtheritic, obstetrical or peripheral paralysis, spastic paralysis, or other conditions due to cerebral stimulation or inhibition. Various forms of muscle imbalance or incoördination as seen in cerebellar tumors, dystrophies and paresis. The various tremors, such as seen in paralysis agitans with typical pill-rolling movements, the thyroid tremors, and the central nervous lesions, characterized by athetosis. Changes seen in the muscle substance of the degenerative types with fatty infiltration, tumor formation or fibrosis. The various forms of myositis including the ossefying type, and Volkmann's Ischemic paralysis.

Intrinsic

The intrinsic conditions may be classed under infections, deformities, nerve injuries, tendon and muscle injuries, fibrosis, bone disease, fractures, and tumors. These we wish to discuss in more or less detail.

Infections

A conception of the anatomy of the lymphatic drainage in the hand, and of the formation of the tendon sheaths and bursae is essential to an understanding of these infections. The first type of infection we will discuss is a general cellulitis seen on the dorsum of the hand. The lymphatics on the dorsum drain in the long axis of the extremity, and therefore tend to spread the infection up the arm. There is a generalized redness with swelling, and generalized tenderness, but there is no throbbing and there are no indurated areas. There may be red streaks of lymphangitis going up the arm. Practically all clear up under conservative treatment with wet dressings. Incision is occasionally indicated.

Carbuncles and boils are usually located on the dorsum of the hand, and when so located the fact to be borne in mind is, they are usually associated with diabetes. The treatment is the usual incision with wet dressings, and the treatment of the diabetes when present.

Paronychia is a simple, but painful infection about the nail and when treated by early incision and wet dressings clears up quickly. It is at times necessary to remove a section of the nail when the matrix has become involved.

Felons. A felon is an infection of the closed space made by the fascia beneath the flexor tendon on the palmar surface of the finger pulp.

There are dense fibrous strands which hold the fascia in close contact with the bone. These anatomical fibrous bands cause the intense pain by limiting expansion and placing the pus under terrific tension. The infection later travels down along these bands to the periosteum, to involve the bone with subsequent necrosis. The characteristic symptom of a felon is an agonizing, throbbing pain, localized to the distal phalanx. The patient tells you he has not slept for several nights, and he carries the involved finger in the palm of the other hand, with a characteristic attitude and tender solicitude for the welfare of the felonous finger. The treatment is early incision. It should be adequate and start at the base of the nail on the lateral aspect, carried around the end of the finger to a point opposite the starting place. This should be deepened to the bone, and the pulp of the finger turned palmward. The closed space is then adequately opened and drained with a through and through rubber drain inserted. The skin edges of the incision are sutured with interrupted horse hair, wet dressings applied and the hand splintered.

Suppurative teno synovitis. This is an infection of the tendon sheath. The patient complains of a severe, throbbing pain involving the whole finger. The pain is not localized by the patient, the finger is held semi-flexed, and movement of the finger is excruciatingly painful. The entire finger, and the adjacent sides of the neighboring fingers are swollen, and pit on pressure. Attempt to passively hyper-extend the finger, produces exquisite pain at the meta-carpo-phalangeal joint. The severity of the infection is determined largely by the organism causing it. The streptococci produce the most profound systemic reaction, and the staphylococci, the most severe local reaction. The treatment is long incisions placed mid-laterally along the finger to avoid the volar nerves. Drain should never be used. Wet dressings are applied and the hand splinted.

Palmar abscesses. The lymphatics on the palmar aspect drain perpendicularly to the long axis of the palm, therefore, superficial infections drain into one of several places in the palm, producing abscesses. Infections may extend from the thumb or index finger, through the sheath and bursa which in these two fingers extend the entire length of the flexor tendons through the palm and into the wrist. This being the usual formation of the radial bursa in the palm. They may extend from the fifth finger for the same reason the ulnar bursa usually extending along the entire length of the flexor tendons of the fifth finger through the palm and into the wrist. The bursae of the other digits end at the meta-carpo-phalangeal joints and do not extend into the palm. In addition to infection in the palmer radial and ulnar bursae, we may have infection of the mid-palmar space, the thenar space and subcutaneous infections. In radial bursa infections the greatest swelling and tenderness is on the radial side of the palm. Movements of the thumb and index finger produce severe pain. In the ulnar bursa infections the tenderness and swelling is most marked on the ulnar side, and it is movement of the fifth finger which produces the greatest pain. In infections of the mid-palmar space, the palm bulges out, there is marked induration and the third and fourth fingers are held semi-rigid. They can be flexed and extended however, without undue pain, which would not

be true in a teno-synovitis of these fingers. In infections of the thenar space this area is markedly ballooned out and any movement of the thumb, but particularly adduction and abduction is very painful. The treatment of any of these infections in the palm requires early, and adequate incision and drainage. Kanaval, Bunnell, and Garlock have suggested incisions for these conditions, but they all pass through the palm and palmer fascia, with loss of function of the flexor tendons, due to adhesions between the tendon sheath and the palmar fascia, or injury to the lumbricales and interossei muscles, often resulting, with the production of a badly crippled hand. Personally, I have always used an approach to the hand, which based on anatomical grounds, seems to be more logical, produced no damage to the structures, and has permitted very effectual drainage. In the infections of the ulnar bursa, I incise along the outer side of the hand, passing beneath the abductor minimi digiti muscle, enter immediately into the ulnar bursa. For the infections of the thenar space, the midpalmar space, and the radial bursa, I incise in the web between the thumb and index finger, and pass between the flexor brevis pollicis, and the adductor transversus pollicis muscles, from which point entry is easily made into these spaces for drainage purposes.

One must be on the alert to recognize syphilitic, chancroid, and tuberculosis infections, as well as those due to fungi and Vincent's organisms.

Deformities

The deformities may be congenital or acquired; of the congenital we have polydactylia, bradydactylia, sclerodactylia, pollex-rigidus, Madelung deformity, cirsoid aneurysm, club hand, web fingers, cleft hand or lobster claw, familial contractions, and congenital amputations.

The acquired deformities are due to contractures, adhesions, disturbances of innervation and muscle imbalance. The most of the contractures are due to spastic, infantile, obstetric or peripheral paralyses; involvement of ulnar and median nerves in elbow fractures; musculospiral paralysis, associated with fractures of the humerus, and etc. ad infinitum. It is with the contracture deformities we are most concerned, particularly those due to burns, Volkmann's Ischemic Paralysis, ulnar nerve deformity, spastic contractures, and DuPuytan's Contractures.

Burns

In the care of burns it is imperative that every effort be made to prevent infection, and contraction deformity, and that the raw areas be covered with epithelium at the earliest time possible, to avoid undue formation of scar tissue, for its presence in the hand bodes nothing but evil.

Volkmann's Contracture. This characteristic distressing contracture deformity is associated with injuries about the elbow joint, and is in my opinion, due to injury to the median nerve inflicted by the force that has produced the damage to the joint structures. The trauma produces marked swelling beneath the bicepital fascia and gives additional compression to the median nerve and arterial supply to the muscles of the forearm. The hand becomes numb, cyanotic and cold. There is pain in the region of the elbow, forearm and hand. Splints and tight bandag-

ing have been ascribed as the cause, and many malpractice suits have resulted. The most marked Volkmann's Contracture I have treated occurred in a boy who had his elbow forcibly fractured by his father, and was then locked in a barn for three days. He had had no bandages or any other form of treatment, but on the fourth day the lesion was very evident. When the above symptoms present themselves in an elbow injury, it is imperative that early incision be made through the bicepital fascia to relieve the tension, and that the median nerve be explored. The treatment of the condition when once present requires time and patience. Gradual stretching of the contracted structures by any one of the various splints which utilize the three point contact principal is advisable, with tenotomies at a later date when a balance of the hand can be assured.

Spastic Contractures

These are usually seen as flexing contractures at the wrist with hyper-extension of the proximal phalanges of the fingers. The cause is a disturbed innervation to the flexor and extensor tendons of the forearm, with increased impulses to the contracted group, or inhibited impulse to the opposite group. These individual contractures require study to determine whether an attempt at restoration of muscle balance can best be affected by depriving one group of muscles of motor nerve impulses by a Stoeffel neurectomy, or doing tenotomies with gradual stretching or both.

DuPuytran s Contraction. This is a lesion due usually, to trauma, but also frequently seen complication arthritis, producing adhesions between the corium, the palmar fascia and the tendon sheaths of the flexor tendons of the fourth and fifth fingers most frequently, but the others may be involved. As the contraction progresses a semi-lunar hard knot appears over the flexor tendons. The fingers flex and are finally drawn into the palm of the hand. The treatment is surgical, and requires removal of the palmar fascia, meticulous care being exercised to prevent injury to the volar nerves, the lumbricale and interossei muscles.

Nerve Injuries

Sensation as well as motor function is essential in the hand. In making incisions the volar nerves to the fingers, the thenar division, and the deep branch of the ulnar nerve should be respected. In divisions of volar nerves sensation to the fingers is lost, and if the thenar division is severed the thumb cannot be approximated to the other fingers, and if the deep branch of the ulner is cut a claw hand will result, with weakness of grasps of the thumb, and inability to spread the fingers. When severed these nerves should be repaired as soon as possible. Regeneration occurs in three to seven months, being more rapid the nearer the periphery.

Tendons

The condition commonly affecting the tendons and their sheaths are rupture, tuberculosis, teno-synovitis and ganglion, and severance.

Inability to flex or extend all or part of a digit, indicates a tendon or tendons involved. If there is no infection, repair of the tendon should

be done at once. It may be necessary to transpose, transplant or graft tendons, depending on the degree of destruction, and the particular tendon involved. The scope of this paper will not permit detail, except to state that where a digit has more than one tendon, advantage may be taken of this fact, and the remaining tendon made to function for the damaged one. If grafting becomes necessary the extensor tendons of the toes, provide the necessary grafts. The cut ends must be freed within their sheaths, and paratenon must be transferred with the grafts or free paratenon supplied covering the teno-plasty, to provide the gliding surface. If the joints of the fingers are not movable, it is useless to do a teno-plasty.

Tuberculosis. Tuberculosis of the tendon sheath is diagnosed by the history, swelling, and the presence of the characteristic rice bodies. The treatment is conservative with general principals employed including splinting. If this fails the sheaths should be opened, the bodies removed, the sheaths sutured tightly, and the hand and wrist splinted.

Ganglion. It has been definitely established that ganglia are not directly related by communication with joint or sheath spaces. The growths are attached to capsules of joints and to tendon sheaths, or both. Those communicating with joints are false ganglia and are due to rupture of the capsule with herniation. The location and symptoms of ganglia are familiar to all. The surgical removal is most disappointing, and does not compare favorably with those which are broken or aspirated and then injected with iodine or other sclerosing agent.

Fracture

The treatment of fractures of the carpal, metacarpal, and phalangeal bones offer difficult problems. The fractures and dislocations of the radius and ulna are properly included. Alignment and position of the fragments of the fracture in the wrist and hand are more important than most any other fractures. If not proper there is inevitably some compromise of function in the hand because of the intimate relation of various tendons to various bones. In fractures of the lower end of the radius the dominant principals in the treatment are maintainance of a clear joint space and of the normal angle between the axis of the plane of the articular process with the long axis of the bone; and early passive movement to prevent adhesions involving the tendons. In fractures of the carpal bones, the scaphoid, semi-lunar and os magnum are most frequently involved. Conservative treatment with use of a cock-up splint is indicated. Should pain persist or the X-ray reveal a cystic degeneration, carpal bones should be removed. In fracture of the metacarpal and phalangeal bones traction will insure alignment of the fragments. This may be accomplished by use of the banjo splint, with adhesive, glove, or fingernail traction. Skeletal traction may be obtained by use of the ice tongs now available or by use of heavy silk passed under the extensor tendons and through the distal end of the distal fragment to which elastic traction may be attached.

Tumors

The tumors involving the hand are for the most part benign, malignancy being very rare in the hand. The treatment of the benign

tumors is governed by the amount of interference of function. It is rarely necessary to sacrifice a digit or the hand for these benign tumors.

REPORT OF CASE OF GENERAL PARESIS TREATED BY THERAPEUTIC FEVER PRODUCED BY HIGH FREQUENCY CURRENT

By Dr. J. R. Alexander, Charlotte

(Read by title)

Case of General Paresis referred by Dr. Wanamaker to receive therapeutic fever by aid of high frequency current. Male, age about 40. Patient was in Charlotte Sanatorium where he had received anti-syphilitic treatment for about five weeks before we began the therapeutic fever.

His mental condition was bad. The sanatorium had had his family sign a release in case he should injure himself while in the hospital. To illustrate, he had sufficient intelligence to know that the buttons on his pajama-trousers should be buttoned, but he could neither button them nor ask for them to be fastened. He had a positive Wasserman from the spinal fluid but negative from the blood. At first he was brought to our office in a rolling chair but he could walk a short distance when assisted.

In the first treatment we produced a temperature of 102 under the tongue, and gradually increased it with each treatment until we reached a temperature of 108.3F with the last treatment of the series; though I do not think as high a temperature is necessary. However, the patient did not object or show the slightest ill effect to the high temperature, although the perspiration was profuse. His improvement, though gradual, could be noticed after the second treatment, especially the improvement in his intelligence. In three weeks he could dress himself, tie his tie, and conduct an intelligent conversation. In about three months he was able to resume his work—that of an automobile salesman, and has had no symptoms of return of his paresis. The last treatment was given on the 28th of last July. On the 12th of April, 1932, he was sent by Dr. Wanamaker, as precaution, for two more treatments of therapeutic fever, with the idea of having two more given in six weeks. He is in fine physical and mental condition. He says that his head feels better than it has for two or three years. The important question is how to give the temperature with the high frequency current and what current to use.

Those who listen over the radio to Floyd Gibbons or read magazine articles on the subject might naturally think it is just as easy as filling a prescription by a graduate of pharmacy. To correct this erroneous impression, I am going to read a part of a letter I received from one of the largest manufacturers of physical therapy equipment: "Referring again to your letter regarding two very odd cases which you report. You say that you raised a temperature as high as 108.3 Fahr. Just how did you do this, what sort of electrodes did you use, how did you apply them to the patients, how large were they, how many milliamperes did you find that you had to pass in order to generate such heat? Did you swathe the patient in blankets? Did the patient suffer any great incon-

venience? I would like to have a direct answer to each question and I will tell you why very frankly. In the first place we are trying to establish a definite technic for the treatment of paresis with diathermy."

The high frequency current Floyd Gibbons speaks of over the radio in the interest of the General Electric Company is a supra-high-frequency current that oscillates from ten to fifteen million times a second. The high frequency current that is commonly known as the cutting current and is now being used by surgeons for dissecting oscillates five or six million times a second. The high frequency current commonly known as diathermy oscillates about one million times per second. Our light current oscillates sixty times per second.

If you think all that is necessary to produce temperature is to purchase one of the machines producing the "supra-high-frequency radio current" I invite you to hear a discussion by Dr. Norman E. Titus of Columbia University, and Past President of the American Congress of Physical Therapy, in which he in part says: "That work has been carried on a great deal as Dr. Hemmingway knows in this country, and there are machines now being used on human beings extensively. We had one sent by the General Electric to the State Psychiatric Hospital. There they are doing some work on treating general paretics to raise the whole body temperature. They figure they can raise the temperature pretty well on them because they belong to the state. They were frankly afraid to try it out in the Albany Hospital, and in Schenectady where the work was under the direction of Dr. Whitney. There they were afraid to raise the temperature over 102 degrees. They have large plates about a metre in diameter. The patient is put between these into the electrostatic field. The circuit has an oscillating frequency of 10,000,000 to 14,000,000. They have been able to raise the body temperature slightly, but they have been afraid that they might be sued because some times the perspiration gets too hot and blisters the patients even though they are covered with Turkish towels and blankets. Now they are able to work on subjects that belong to the state. Perhaps in a year there will be something worth while done in the treatment of paresis with the short frequency waves."

From the foregoing we can readily see that so far the "supra-high-frequency radio current" has not proved to be practical. After seeing this discussion by Dr. Titus, whom I know personally after correspondence about another disease, I took occasion to report in part my experience in treating paresis through the brain and spine with diathermy. I received the following reply which I highly appreciate:

"Dear Dr. Alexander:

"I want to thank you for your letter of October 15th and the results you are obtaining in treating general paresis with diathermy are indeed most interesting. You mention giving diathermy to the brain and spinal cord. Would you please send me some word as to how you place the electrodes, because I would like to try your technique and perhaps show some neurologists how easy it is to get results instead of using such cumbersome and expensive apparatus. . . .

"Cordially yours, Norman E. Titus."

"Dear Dr. Titus:

"In response to your request as to how to place the electrodes in giving diathermy to the brain and spinal cord in treating general paresis: For a number of years in treating sinus infections of the head I have used a block tin mask to cover the face from over the frontal sinuses to the chin, leaving openings for the nose and mouth but not for the eyes. The other electrode extends from the occiput a distance down between the shoulders. I have used this method for treating head infections more than a thousand times without the slightest bad effect and usually with good results.

"When I was called upon to treat a case of paresis it was not hard to decide how to arrange the electrodes. I used the same plan as for sinus treatments but extended the electrode in front over the forehead and the one in the back higher up so as to take in the entire brain, having the electrodes fitted to the front and the back of the head, using soap lather to the hairy portions. I use a thermometer in the mouth for my control. If you wish to extend the temperature further down the spine this can be done by two additional electrodes, one on the abdomen and the other under the spine attached to separate connections. Of course we have the patient on his back and the electrodes are held in place by my assistant by aid of sand bags. If we had not used this method in treating head infections, we likely would have been more timid. We leave a large enough opening for the entire nose to be out. Do not put anything between the electrode and the eyes and they will be all right.

"With kindest personal regards, I am cordially yours."

Dr. Titus in his letter to me intimates that to raise the temperature of the entire body requires both a cumbersome and an expensive apparatus. Personally, I do not think it practical or as efficacious as raising the temperature of the brain and spine, the location of the pathology. To appreciate the advantages and disadvantages of either method, we must understand not only the physical effects that the high frequency current produces, but the physiological action that is produced to overcome the pathology. Let us always bear in mind that it is not the current *per se* that overcome the pathology, but the physiological action that is the sequel to the current. If you pass the high frequency current through a piece of beef you cook it. The same current passed through living tissue raises the temperature but does no injury because blood is rushed to the heated parts in an effort to overcome the heat and the heat is carried away by the venous system and carrying away effete matter which in my opinion is very important in obtaining the change of metabolism. When you merely raise the wholy body temperature you would not have the local vasomotor dilatation which in my opinion is the most important. It appears that others who are using high frequency current for producing therapeutic fever for paresis place large electrodes over the chest and abdomen, and to the back. You can raise the body temperature this way, but the highest temperature is in the abdomen. The lowest is in the head and extremities. This is most excellent for treatment of arthritis, but I cannot see it for paresis. Some keep the current going for two or three hours but obtain very little rise

of temperature; but the rise they do get lasts for some hours. Have they not produced some pathology? Why use pathology when you can obtain results from physiological action? By my method of raising the temperature of the brain, it is easily done. The patient suffers no ill effects, although he perspires profusely. A temperature of 107 Fahr. can be reached by passing 2500 milliamperes. Keep it at this temperature 30 to 40 minutes and very slowly lower the current, and in five minutes after the current is removed I have found the temperature to be 100.2, and in ten minutes 99.2; in 15 minutes 98.8 degrees. You will readily see that the temperature is the result of a physiological action on account of the tissues offering some resistance to the passage of the high frequency current. The blood carries the heat to some extent to other portions of the body but the temperature diminishes the farther it is taken from the field of action. On account of the great blood supply you can give with safety a larger amount of diathermy through the head than you can to any other part of the body.

Therapeutic temperature, or fever given by high frequency current, should be the most satisfactory method as it is at all times under direct control, so that the temperature may be raised or lowered at will and made higher at the seat of pathology; flushing out and carrying off the exudates by aid of vasomotor dilatation, thus revitalizing the atrophied cerebral convolutions of the frontal lobes and relieving the thickened and adherent membranes.

President Stevens: If there is nothing more to come before this session we stand adjourned until 8 o'clock this evening, when we meet in Lecture Room "C" according to the program.

Thereupon the Fourth General Session adjourned at 5:05 o'clock.

FIFTH GENERAL SESSION

WEDNESDAY EVENING, APRIL 20, 1932

The Fifth General Session of the Medical Society of the State of North Carolina convened in Lecture Room "C" of the Robert E. Lee Hotel, Winston-Salem, North Carolina, at eight o'clock, President Stevens presiding.

President Stevens: The meeting of the last general session of the Medical Society of the State of North Carolina for 1932 will please come to order.

First is the report of the House of Delegates. I will ask the Secretary to make that report.

Secretary McBrayer: The report of the House of Delegates is as read recently in your hearing. I move its adoption. See House of Delegates, pages 61 and 62.

. . . The motion was seconded. . . .

President Stevens: You have heard the motion, which has been seconded. Is there any discussion? If not, all those in favor signify by saying "aye"; contrary "no." It is carried and the report is adopted.

Is there any new business that should be transacted by the Medical Society before its close?

SECRETARY MCBRAYER: At the request of the President I desire to offer a motion that we extend our heartiest appreciation to the local medical society, particularly to Dr. Lockett, its President and Dr. Carlton, Chairman of the Committee of Arrangements, for the splendid way in which they have handled the things necessary to the pleasure and success of this meeting; and that we further extend our appreciation to the hotel management for their splendid coöperation and the splendid care they have taken of us during the session.

. . . The motion was seconded. . . .

PRESIDENT STEVENS: Is there any discussion of the motion? If not, all in favor of it please say "aye"; those opposed "no." It is unanimously carried.

Is there any further business that should come before the general session of the Medical Society at this time? If not, I am sure that all present will be glad to recognize and congratulate our newly elected President-Elect, and I wonder if Dr. McCain won't conduct him up to the rostrum and give him a chance to be seen.

. . . The members applauded as Dr. McCain escorted Mr. Manning, the President-Elect, to the platform. . . .

PRESIDENT-ELECT MANNING: Dr. McBrayer says I can say something if I want to. I never have wanted to in my life as far as I know, except I would like to express my very great appreciation to the members of the State Medical Society for this great honor that they have done me.

I am very glad to know that I have a year in which to prepare myself for actual office, and I will be watching Dr. Wright from now on, and I am sure he is a good teacher.

Thank you very much. (Applause)

PRESIDENT STEVENS: Now if I may ask Dr. Lawrence to conduct our President-Elect to the rostrum I will be glad to surrender the gavel to him.

. . . The members applauded as Dr. Lawrence escorted the incoming President, Dr. John B. Wright, Raleigh, to the chair. . . .

PRESIDENT WRIGHT: Like Dr. Manning, I feel signally honored, and Dr. Manning I want to say to you that I have had this year of preparation, and unless you avail yourself of the opportunity more than I have you will find that the year will slip by and you will still be where you are now—unprepared.

It is natural that we do not until we have to make preparation for the things that are in front of us.

However, I want to say this—that individually I am incompetent to handle and supervise this great task that is upon me, and I want every doctor in North Carolina to feel that he himself should coöperate with me and not only offer me suggestions but offer me constructive criticisms, for if organized medicine is going to continue to succeed it is more than one man's job. I hope and know that we can succeed if we can get a unified coöperative action of this great body of our profession represented in our great state.

I thank you all very much and ask the coöperation of all of you during the coming year. (Applause)

I read a pretty little story one time, that the end was the beginning; that the end of day was the beginning of night, and that the end of one year was but the beginning of another. So the beginning of my administration will be the ending of this session.

I am ready now to entertain a motion to adjourn.

Dr. Lawrence: Just before you get that motion, I feel that we should express our appreciation to the retiring president for his splendid service during this year, and as a part of that our thanks to our secretary upon whose shoulders a large part of the responsibility for this and other meetings rests. It seems to me the further he goes the better he gets.

I want to introduce that resolution.

. . . The resolution was seconded by Dr. Hicks. . . .

President Wright: All in favor of Dr. Lawrence's motion, please let it be known by rising. It is unanimous.

Now if there is no further business we will entertain a motion to adjourn.

. . . Upon motion duly made and seconded it was voted to adjourn. Thereupon the 79th annual meeting of the Medical Society of the State of North Carolina adjourned sine die at eight-fifteen o'clock. . . .

CONJOINT SESSION

OF THE

Medical Society of the State of North Carolina

AND THE

North Carolina State Board of Health

The Conjoint Session convened in Lecture Room "A" of the Robert E. Lee Hotel, Winston-Salem, North Carolina, at 12:20 P.M., on Wednesday, April 20th, Dr. M. L. Stevens, President of the Society, presiding.

President Stevens: The meeting will please come to order.

We will first hear the report of the President of the State Board of Health. Dr. Burrus! (Applause)

Dr. J. T. Burrus (President State Board of Health):

Gentlemen of the Conjoint Session of the North Carolina Medical Society and the State Board of Health: In coming before you today in keeping with a custom that has existed since the beginning of this organization, and in presenting a plan under the new organization, I wish to appeal to the medical profession of North Carolina to support in every possible way this organization that is endeavoring to make of this citizenship in this our state a better citizenship, a more healthy citizenship. In doing this I regret immensely that every member of the North Carolina Medical Society cannot give us just a little of their time that we may be able to present the working plan of this organization.

We realize that the State Board of Health belongs to the medical profession of the state. We do not desire in any way to interfere with the practice of medicine as it exists in North Carolina but, on the contrary, we wish to support every practitioner of medicine in the state.

Now it is the hope of the State Board of Health that the county organization and the district organization will make known to this Board just what they want. In other words, we invite your criticism, and we know that that criticism will be constructive.

We do not propose now or in the future to make the State Board of Health a treatment agency. Neither do we propose to inject the influence of the State Board of Health into the treatment of diseases. We invite you to come to us with your assistance, with your counsel and with your support, and I appeal at this time to the medical profession of North Carolina that each one may make of himself a veritable health officer.

Now I know that in the past much criticism has come about with reference to some workings of the State Board of Health, thinking that

there was a tendency to state medicine and that the State Board of Health was supporting and pushing this idea. Far are we from any thought like that, and I can assure you that no organization in this state is more opposed to state medicine than is the present Board of Health of your state.

However, this, gentlemen, you must consider and this the medical profession must keep constantly in mind. Eighty-two per cent of the white children in North Carolina are born at the hands of the doctors in North Carolina. That doctors go into the homes daily, weekly or monthly, often to say the least, and he has the supervision of the health of that child until it reaches six years of age.

If in those six years of close contact with the child in the home the remedial conditions of that child have not been corrected, if that child has not been immunized against the preventable diseases, if that child has not been corrected of physical defects, then when that child comes to the day of entering the public schools of North Carolina and the teaching body finds that there is a defect, don't you, for God's sake blame the State Board of Health for it.

You have had this child for six years, and if the medical profession would get on its toes—and I say this advisedly—and do what it should do and what it could do, we might deliver to the school forces of this state a child that had been immunized and that has had those defects corrected that were possible to correct.

I appeal to the doctors of North Carolina in this way to assist your County Health Officers, your District Health Officers and your State Health Officers in removing from the children these defects that the State Board of Health or some of its agents must and should remove when they come to be charges of the state in so far as education is concerned; for at that time they will check you and find whether this job has been done well or not.

With this thought to leave with you, I now present our State Health Officer whom the present Board felt very fortunate to obtain. After every effort, after all persuasion, we succeeded in securing the service of Dr. James M. Parrott, and I want to say to you here and now that my prediction that Dr. Parrott would make as good a health officer as the best has been fulfilled. Dr. Parrott! (Applause)

Dr. James M. Parrott: Mr. President and Gentlemen: I deeply appreciate your cordial welcome under these adverse and unusually difficult circumstances. It is exceedingly unfortunate that our legitimate organization should encroach so much, so untimely on the limited space that we have, and it is certainly not relieved by virtue of the fact that the management here at the hotel seems to be determined that we shall get through quickly in order that some people might enjoy their gastronomic propensities. (Laughter)

Now I am going to ask the Conjoint Session to allow me the courtesy of simply submitting my report in writing under the circumstances, unless the waiters can be excluded from the hall and we be given a fair and reasonable opportunity to discuss the important health services of the State of North Carolina. Unless I can have that assurance I shall

decline to go further. Frankly I am very much annoyed by this situation. I am not mad but I am damned near it. (Laughter)

. . . After the waiters were excluded from the room, Dr. Parrott then proceeded. . . .

Gentlemen, I shall not impose on your good nature, which I appreciate, by referring in too much detail to the service which the Board of Health is now rendering. I content myself with the statement that the activities of this service, vast and extensive as they are, are now grouped around five major divisions: The Division of Laboratories, Preventive Medicine, Dentistry, Sanitary Engineering, Epidemiology and County Health Work.

These services are manned, in my judgment, by skilled, trained, trusted, tried and not found wanting, highly technical, patriotic, self-sacrificing men who know their stuff and who are today rendering for North Carolina a signal and outstanding service in the greatest work which mankind can be engaged in—that is public health work.

I take this opportunity of saying here—and I can do so because I have had but little to do with it, but with a vast deal of pride that comes to every medical man and North Carolinian—that the State Board of Health has succeeded in bringing together an all-star team in Raleigh to command the forces that battle against disease for the uplift of your great commonwealth. (Applause)

In this tragic hour of the state's financial depression, I have no hesitation in declaring to you that when the limelight of publicity blazes upon the services rendered by the state it will not find anything wrong with the Public Health Service in this commonwealth. (Applause)

There is not now and there will not be so fine a fighting army, battling as they are like noble sons of Zeus against hell, death and depression, including "Hoover Prosperity," as the public health forces of North Carolina in this day and time.

Will you allow me, my friends (your generous applause encourages me to believe that you will), to present a little in detail the policies of the Board.

ANNUAL REPORT NORTH CAROLINA BOARD OF HEALTH TO CONJOINT SESSION, STATE MEDICAL SOCIETY, APRIL 20, 1932

By Dr. James M. Parrott, Secretary and State Health Officer

While I did not want to be State Health Officer and accepted it with real reluctance, I regard my selection as a great distinction and it is deeply appreciated. It is my opinion that the position is the most important and most honorable in North Carolina. It is a great responsibility to lead two and a quarter million people in the ways of health. I am comforted and sustained by the fact that I am supported in these trying days by the doctors of the state. They have always been kind to me and will not fail me now.

The State Board of Health recognized the importance of simplicity in organization and therefore created only five grand divisions and grouped around these all of our activities. Time will not allow me to

enter into a detailed discussion of the many duties of each department. For your information, allow me, please, to call your attention to some outstanding facts.

Division of Laboratories. This is directed by Dr. C. A. Shore. It is a well-known fact that there is no better laboratory director, or more skilled scientist in his line of work to be found in this country.

The true value of the work of the State Laboratory of Hygiene could only be estimated if we could determine the number of lives saved and the amount of disease prevented. It is possible to give approximate figures on the important matter of cost of operation and to compare these figures with the amount which our people would have to pay to obtain the same service elsewhere.

In the first nine months of this fiscal year, the laboratory expended less than $58,000.00. During this period the value of the biologics distributed, and in a major part manufactured, amounted to more than $550,000.00 at a reasonable retail price. The value of nearly 80,000 diagnostic tests on a private pay basis would amount to more than $400,000.00. This sum of more than $900,000.00 does not include all the miscellaneous items of service rendered by the laboratory. The saving to our people in antirabic serum service more than pays the cost of the laboratory each year. The money saved our people by all our laboratory services would pay all the expenses of the State Department for nearly four years.

Dr. Shore is of the opinion that the best piece of work done by the State Laboratory has been the manufacture and free distribution of typhoid vaccine. Unquestionably, the use of this vaccine has been an important factor in improving our typhoid fever situation.

The laboratory continues its work in making and distributing vast amounts of all needed biologics, water analyses, diagnostic tests, and sanitary investigations so much needed for the health and economic progress of a great, forward-looking people. The activities of this division are essential to the physical and material welfare of the state.

The functions of this service can be fairly summarized under five groups:

1. Diagnostic assistance.
2. Water, milk and kindred control service.
3. Manufacture and distribution of biologic serums, vaccines, etc.
4. Health education features.
5. Necessary and needed research or investigation work.

Division of Preventive Medicine. This service is under the direction of Dr. G. M. Cooper. The comprehensive grasp of public health problems by Dr. Cooper is so well-known that no words of commendation are needed for him. He is a steadying influence in our department.

The activities of this division comprise the responsibility for public health education in the state. It includes the issuance of a large amount of general and special literature, and much of a miscellaneous character dealing with every health subject.

This division is charged with the responsibility of our Maternity and Infancy service, the extent of which is indicated by the fact that we find it necessary, in order to meet requests, to prepare and mail an average

of 24,000 copies of pamphlets monthly relating directly to the care of infants, children and women. Much of this literature is regarded as the best that can be obtained in the United States. From this service there is mailed to midwives and physicians more than 800 packages of silver nitrate monthly.

This division carries the work of school health supervision. When we recall that there are nearly 900,000 school children in North Carolina we cannot but be impressed with the importance and difficulties of this particular service. I do not mean to say that we reach all of them each year but I am saying that we are fighting hard to do so and our only reason for being able to touch them only once in three years is explained by lack of proper financial support.

Dr. Cooper handles nearly all the individual health service correspondence. Most of the inquiries regarding personal medical and hygiene subjects are answered by him. It is impossible in anything like a reasonably short report to detail, with any degree of satisfaction, the variety of duties of Dr. Cooper. He and his work are so well known that I content myself with these citations.

Division of Sanitary Engineering. Mr. Warren H. Booker, the director of this division, came to the service with a ripe, broad experience in his profession. He was well-known in public health work when selected and had rendered outstanding service with this Board as its first sanitary engineer. During that time he laid the foundation on which our splendid superstructure has been builded.

Mr. Booker's work has been made unusually difficult because of the necessary reduction of personnel for financial reasons, from 26 employees to 13. No service can fail to be seriously effected by a reduction of fifty per cent.

The work of this division embraces all non-medical activities of the Board including among other things, water supplies, sewage disposal, milk sanitation, shellfish sanitation, hotel and cafe, summer camp and roadside sanitation, as well as enforcement of the bedding law and privy law.

Mr. Booker and his co-laborers travel more than 6,150 miles per month. For the period of July 1, 1931 to March 31, 1932 inclusive, among other things, more than 55,000 privies were inspected, improved and built. During this time it has been found necessary to prosecute only in five instances, a striking testimonial to the ability of our sanitary service to bring things about in a peaceful, quiet manner.

During the nine months which have just past, a total of 1,528 septic tanks were inspected, improved and constructed. Nearly 2,000 inspections of hotels and cafes have been made. During that time dairy inspections and rating and laboratory service to an amount of practically 3,000 have been performed. This does not include the Milk-For-Health Campaign and a variety of veterinarian services. Bedding inspections and school inspections will run probably more than 2,000. During the nine months period approximately 12,000 water supplies have been serviced. Much necessary work has been devoted to sanitary conditions of jails, county prison camps, and highway prison camps. This division has been of considerable value to the Vital Statistics Bureau by

visits and conferences with registrars, undertakers, doctors and midwives. To all of this has been added a miscellaneous group of activities such as summer camps, private homes, special investigations, typhoid fever conferences, plumbing and heating examinations, inspection of state institutions, and that very difficult, highly complicated, and valuable work from both an economic and health standpoint, the study of industrial waste.

The Board recognized the necessity for veterinary service and employed Dr. M. E. Coyle for this important work. The veterinary surgeons of North Carolina, though few in number, are an intelligent and outstanding group of professional men. They are rendering a valuable public health service.

Division of Dentistry. Appreciating the importance of dentistry in public health work at its first meeting, the Board raised our dental activity to the dignity of the division. Dr. E. A. Branch is director of this service. Just here let me express my deep appreciation to the dentists of North Carolina for their scientific conception of health values and for their enthusiastic and loyal support.

The staff of this division consists, in addition to the director, of eleven white and two negro dentists. During the recent nine months mouth health campaigns have been conducted in thirty-three counties. The large number of treatments which have been given have been for teaching health by demonstration. There is no question but that interest in mouth health education is rapidly increasing in North Carolina. The practical value of this service is outstanding. Our limited appropriation would not possibly carry this largely increased activity were it not for the fact that Dr. Branch has been able to persuade other governmental agencies and private interests to contribute several thousand dollars to this work.

Division of County Health Work and Epidemiology. I do not mention this last because it is of least importance. Neither of our divisions are of least or greatest importance. They are all stars and stars of equal magnitude and glory.

Dr. John H. Hamilton is director of this activity. He came to the department the first of September, 1931. His ability justifies his national reputation. During his public health career while serving with the International Health Board he instituted the county health work for another great state. While on a special mission in North Carolina, his ability was discovered and he was persuaded to take charge of an important and strategic local health unit. He is one of the most unselfish men of whom I have any knowledge. When I suggested his salary he simply said, "Let's not discuss salary. I am interested in public health because of the service which I can render."

A detailed citation now of the services of this division would require too much time. Its name indicates its duties fairly well. The division handles nearly 2,000 letters a month, both circular and dictated. The director travels probably 900 miles a month. In addition to conferences, rendering expert advice, radio talks, field investigations, Dr. Hamilton is responsible for performing that most difficult duty which I denominate as "persuasion service." This includes convincing local authorities

that they should improve their health work and persuading the inauguration of local health activities where none exists.

Forty-nine counties have whole-time employees though only thirty-five have a whole-time health department and only sixteen have a standard minimum four-unit health service. As indicated by its title, this division is charged with the responsibility of assisting and advising with the local whole-time and part-time organizations and workers.

Our whole-time and part-time local health workers are loyal and earnest, and are battling like noble sons of Zeus against almost unsurmountable obstacles for the improvement of mankind and the betterment of living conditions in North Carolina. Without our local health departments, our health program would be greatly hampered, if indeed it did not collapse. Many times visitors from a distance and students have praised the doctors of North Carolina in extravagant terms and paid high tribute to the intelligence and earnestness of our local health workers. This has brought me much satisfaction.

The epidemiological work of this division is extensive. It is a grave and far-reaching responsibility. This service alone is enough for any one man to direct. We hope to get an outside agency to help us in carrying the burden of epidemiology.

The Board of Health, in October, 1931, realized the impossibility of Dr. Cooper carrying longer the Bureau of Vital Statistics, transferred this activity to the Division of County Health Work and Epidemiology. Dr. R. T. Stimpson of Yadkin County was selected to head this division. He came to the service in January, 1932. He has rapidly grasped his duties and has shown himself to be a man of ability. In addition to the routine work, both interpretative and clerical, the Vital Statistics Division has to handle more than 36,000 letters, blanks, cards for deaths, births, reportable diseases, certificates, transcripts to and from Washington, automobile accident cards, etc., each month. This service is made possible, to a large extent, by funds which are now being obtained from the Federal government for registration purposes.

In spite of our large correspondence and great amount of literature distributed, and of miles traveled, and laboratory service now being rendered, and of records now being handled, we are not able to meet even the solicited demands of our industries and our people. We can not carry on as effectively and as reasonably well as we should because of lack of financial support.

BOARD POLICIES

Rapid increase in public health knowledge together with the desperate and fast changing economic conditions of our people, and almost revolutionary reversals of attitude of the public and the profession, make it impossible to outline with anything like fixedness and definiteness adequate policies, indeed, raise the question, "Is it wise to have fixed policies even though it is necessary to have a fixed point to which one should go?" After all it is not so much the method of travel as it is the purposes which motivate and the direction one is going which count. I am grateful that our Board of Health is sufficiently elastic

and possesses such a high degree of intelligence as will always keep it moving and changing but always and ever, for the better.

At this time the following are the policies of this Board:

1. The State Board of Health is not primarily a law-enforcement agency and when conditions compel, or the statutes require it to do so, such work will be considered only as incidental and not as a general policy. We believe in the power of persuasion and have faith in the ultimate desire and purpose of all, professional and lay alike, to do the right thing once the right and wise thing is determined. North Carolinians are so constituted that they cannot be compelled to do a thing: they must be persuaded.

2. The State Department of Health is not a curative agency and when, under unusual conditions, it may be necessary to engage in treatments, such activity will be only incidental and never a policy. Immediately on assuming the duties of this responsible position, I advised certain state activities, local governmental units and individuals that treatments by public health service would not be approved. The result of this has been that a large amount of legitimate work has been turned from government to the physicians and dentists of the state. I am sure that you appreciate and value this attitude.

I recognize the fact that doctors are pressed on every side as never before with all sorts of reasons and all kinds of excuses for rendering free service. In refuting these we must not swing too far in the other direction and allow ourselves to forsake the time-tried and time-proven ideals which are the proud heritage of us all. It is my judgment that physicians are fairly entitled, and in wisdom should, within due bounds of propriety, seek self-preservation insofar as such would be compatible with the discharge of our high and sacred responsibility. Admittedly, the doctors are going and have gone too far into the domain of State Medicine. For this I have the grave suspicion that the profession itself is more responsible than anyone else. The practice of medicine is not a hireling's job. Neither is it a job to be farmed out, or controlled either through finances or otherwise, by any agency whatever. Too many groups under the guise of charities, fraternal organizations, churches, corporations, lumber camps, plantations, and governmental and other agencies are encroaching on the legitimate field of financial reward of the profession. The medical men cannot much longer survive this inroad. The time has come for us all, and that too in no unmistakable terms, to say to such, "Thus far, but no further shalt thou go." In accordance with this conception, the State Board of Health has definitely decided to withdraw from the field and to discontinue, so long as possible, the so-called "Tonsil and Adenoid Clinics." No apology is offered for beginning them. They have served well their educational purpose. Just a word of warning here. There are agencies, organizations, and individuals, both medical and otherwise, who are insisting that some method shall be devised for the correction of the physical defects of children. This insistence is right and wise and is justified in the high court of humanity. The State Board of Health, having retired from the field on the theory that curatives is the function of others, it now rests with the physicians of North Carolina to determine

what they will do about it. I have the temerity to suggest to you that the people of the state now know as they have never known before what was correctly stated by Oliver Wendell Holmes when he said that if you wish to improve a man you must start with his grandfather, and they are coming more and more to think that the way to improve the grandfathers of the years to come is to start with the children now.

3. The State Department of Health is not a diagnostic agency. We accept the diagnoses made by physicians. When it may be deemed advisable to make a diagnosis, such may be done only as a courtesy to or at the request of doctors, or when definitely indicated to protect the public health. An elucidation of this attitude, I take it is unnecessary, and, I therefore, present it to you on its undiscussed merits.

4. Only in part is the State Board of Health a Health Promotion agency. By this is meant, the State Department of Health will warn that certain symptoms mean danger and that a doctor should be consulted. This is the field in which public health officials and doctors must labor and labor in harmony. Both have a definite responsibility here. Let me illustrate—it is clearly the part and duty of the public health servant to warn the expected mother that a rocking headache may mean danger, and urge her to consult a physician. It is not the duty of the public health servant to walk with the woman through the Valley of the Shadow; however, it is his function to meet her on the other side and say to her again that her postnatal care is important and that her precious offspring must be protected against transmissible diseases. We must learn to work together. We must have faith in each other. We must have an abiding confidence in the ultimate and underlying purposes of each other. The doctor has his field; the health officer has his field, and they each need the other. There must be no delay by squabbling over misunderstandings and minor details while disease spreads and human life is endangered. The public has reached that point when it is not so much concerned about men, or their attitudes toward each other. The public is enormously concerned about the results. The question is not whether someone else is at fault, or intruding on personal rights, the question of the practical hour is, "Can you deliver the goods, and do it now?" There are two things which surpass my limited understanding. First, church fusses in the very atmosphere of the doctrine of the Brotherhood of Man and the Fatherhood of God. And second, misunderstanding and time wasted in petty quarrels by men who are engaged in the great and solemn undertaking of relieving suffering humanity. The public health service in North Carolina is of tremendous help to the medical and dental professions, and in turn these professions are of much help to public health service. Let us labor in the field of health promotion together as one harmonious whole, keeping in mind forever that we are all journeying in the same direction and to the same high place.

5. The State Board of Health is primarily an agency for the prevention of disease; public health education; sanitation; expert health advice; laboratory activities; immunization; oral hygiene; control of epidemics and transmissible diseases; county health activities; medical inspection of schools.

The State Health Department has certain conceptions of its duty in the field of immunization and I think its ideas may be fairly stated as follows:

1. It is the responsibility of health departments to make every reasonable effort to control communicable disease within their jurisdiction.

2. The method of procedure, except as prescribed by laws, rules and regulations, should be wisely left largely to the discretion of local communities and whenever communicable diseases are confined to or clearly will not spread beyond the jurisdiction of the local health service; and that the State Department of Health should assume full responsibility of control, either directly or through local agencies, when such communicable diseases have actually become, or will probably become inter-county. The health department should be very cautious in transferring any part of its immunization program to any private agency without having first satisfied itself as to the completeness, effectiveness and ability of such agency to properly discharge the immunization program. To a thinking man, in my opinion, it is definitely the part of wisdom as well as the solemn duty which it cannot shirk and of which it should ever be mindful, of every health department, both state and local, to reserve unto itself the right to pass judgment upon the effectiveness of any immunization service carried on by any unofficial agency over which it has no control. To assume any other attitude than this is unsound health policy, unwise attitude for public protection, and would be in effect a surrender to others, whether it be professional or otherwise, of a vital function. When a private agency relieves the health department of the responsibility for the control of communicable diseases by immunization or in any way, it should be done with the definite understanding of the situation and with the further knowledge that the health department does not forfeit its right to use immunization methods whenever indicated or necessary for the purpose of preventing or controlling communicable diseases when and if the non-health agency fails to perform its assumed function of immunization with that thoroughness and permanence which makes for effective work, or when it is clear before the assumption of responsibility for immunization by other agency than the public health service it is foredoomed to defeat by the plan, method, or inability of the agency to carry on the service.

For purposes of clarification, I think the matter can be fairly stated in this way: When in the management of communicable diseases doctors, if and when mindful of the public health, should direct and that the health officer should aid the doctor as the doctor may desire, or the public weal demand. When in the exercise of immunizations for the purpose of controlling communicable diseases, such control being distinctly and definitely a public health function, the health service should lead and the physician should aid. However, the physician in justice to himself and the people cannot avoid his clear duty to press the immunization of the children of his patrons. It has been my experience that but few doctors fail to recognize their public responsibility and with this idea in view it is my conception that whenever a local medical fraternity desires to do so and definitely expresses such purpose and will clearly state in unmistakable terms its wish to handle local im-

munizations, thoroughly and completely for their communities, that they exercise this function. But when the physicians do not do so or do not indicate their desire to do so, the public health service in the discharge of its solemn and clear obligation must assume and will assume that function.

I hope that there may be no misunderstanding about immunization or misinterpretation of the above stated attitude. The State Health Department is very desirous of regarding the wishes of the doctors of North Carolina and of following their leadership when they properly and fairly assert it. When they do not do so, the health department must act. I am now mindful to say in this connection, that if our doctors do not regard the above-stated policy as the proper and wise one, the State Board of Health will be very pleased to discuss the matter in detail for the constructive purpose of reaching some satisfactory solution.

All of us, professional and lay alike, would be happier if we would but realize that in the shifting order of things and in man's groping for the light, frail as he is and feeble though his efforts be, we have now come to the time when we are moving and living in the atmosphere of a new social philosophy which, in the language of Angel: "Conceive social order as under binding obligation to give its members wholesome conditions of life, protection from needless exposure, whether to climate or disease or moral depravity. It conceives human life as indisputably superior to money or other physical property in any form, and it is disposed to suppress, or radically modify, any agencies or practice which appears to be exploiting man for the promise of merely financial or material gain."

It is my opinion that any group, whether it be official or unofficial, governmental or otherwise, which undertakes to have any other conception of life's duties than that expressed in the field of service and work for the common good, will eventually be destroyed and those who take the view that "I shall receive all and give none" will become as dead as the Dead Sea. It is written in the Book of Life by the unconquerable Fates that the one who lives for self alone and unmindful of others shall be destroyed and that the one who labors for mutual good shall survive. It has never been possible and it is certainly not so now, when we can safely disregard the lesson of the Good Samaritan and be unmindful of the deep and underlying human philosophy that I am, after all, responsible for my brother's condition. All of this I state here and now, not as a criticism, or even as a warning. I state it as my conception of what will bring success in this tragic age.

Achievements and Difficulties. The figures which I have given above and the facts which I have cited sound large, and they are. Indeed, they are stupendous. They are amazing but then North Carolina is a tremendous state. It is as large as England which rightfully boasts that it was the proud mistress of the sea. We have many people to serve. Our industries and enterprises are multitudinous; our interests are many and varied; our climate runs from the semi-tropical to the cold. All these so greatly multiply our work that even though, in detail, the activities seem great, they are really very small in comparison

with the requirements. Our work has been made possible by several factors. *First,* the predecessors of the present state health officials laid a broad and a deep foundation and builded on it a matchless superstructure in which we now labor. To them should go great honor and great glory. *Second,* the work has been accomplished by self-sacrifice on the part of our co-laborers each of whom is fired by a holy zeal for service.

I am sure that the tolerant and appreciative people of North Carolina will overlook our shortcomings in view of the fact that our state appropriation has dropped from $486,000.00 in 1929 to $263,647.00 now available. I remind our people that were it not for the assistance which we get from the International Health Board, the U. S. Public Health Service, the Rosenwald Fund, life insurance companies, and other private agencies and particularly the Parent-Teacher Association, we would be compelled to fold our tents and solemnly and shamefully slip away. We are begging! Yes, and it is humiliating too, but I'll beg for the sake of this service.

In calling your attention to our financial distress I do not mean to complain. On the other hand, I am grateful to our overburdened taxpayers for the real sacrifice which they are making to carry on their own great work. Solemnly do I promise them to be mindful of their efforts even in the expenditure of a postage stamp.

The Budget Bureau is doing its very best insofar as the limited funds of the state will permit, to reduce our crippling to a minimum. We are coöperating to the extent of our ability, and with a sympathetic understanding, with the Budget Bureau in its very desperate effort to preserve the credit of the state and relieve the taxpayers by balancing the budget. However, in any scheme for economy, it must be remembered that there are certain things which are essential for the preservation of our state, and therefore, must be preserved even at the expense of desirables or even much needed non-essentials.

Public health is of prime importance in any civilization. It is the outstanding spiritual and its activities must be held inviolable and be unhindered and unhampered. I can not follow that line of thought which contends that it is wise to protect non-essentials even though really needed at the expense of the most necessary of all secular social activities.

I hold it to be fundamental in governmental wisdom to distribute tax money in accordance to the needs and efficiency of service.

We cannot justify expending, as individuals, nearly six times as much for funerals and tombstones as we contribute in the form of public support to health service.

Good health is a debt eternal to the next generation. It is a horrible thing to project the baneful effects of the present depression into those who follow. This financial distress will sooner or later pass away but the effects of stinginess in public health service will go on and on. It is imperative that the children of today suffer not a bit in body or mind if they meet with success, the problems which we will transmit to them.

Amelioration or prevention of human suffering, though that is of

the greatest importance, does not tell the whole story of public health service. Our industries look to the health department to protect them and to provide for them strong and willing workers. No thoughtful man will invest or continue an investment in unhealthy surroundings.

It is utterly impossible to develop a Class A commonwealth out of Class B people.

Solemnly do I warn North Carolinians against that day which will surely come should the present delimitations of public health service be much longer continued when disease, which is growing much less now because of efforts of yesterday, will again begin its onward march and strike to death or seriously impair our people and cripple our industries.

It is wise, too, that the people of North Carolina right now understand that the old order of things in which we thought in terms of saving human life alone is passing away. The new conception is that public health service is an agency that should go further than merely saving a life and should increase the efficiency of those who live. The philosophy which declares for the right of the little man to live is fine, but much grander and nobler, and infinitely more challenging, is that philosophy which declares for the right of all the sons and daughters of men to live life more abundantly.

I remind you that we are meeting here in the midst of the greatest and most far-reaching, the most devastating depression that the world has known in a hundred years. Fortunes shifted away; hopes blasted; hearts broken; homes wrecked everywhere, and yet the storm does rage. These times demand more public health service than ever before. We must grasp the only safe anchorage left, the anchorage of health and courage and faith; faith in ourselves, faith in each other, and faith in God.

If we sacrifice our public health now we will lose our grip on ourselves, we will continue in this wilderness through which we are now groping in moral, physical and financial darkness for years and years to come.

Now for high hearts! Hold ideals and the blessed determination to travel the ways of service and nobility of sacrifice!

I will not weary you with a recitation of statistics or detailed statements of the multitude of things which we have accomplished, but I cannot forego the pleasure of stating that North Carolina today is healthier than it has ever been before, thanks to the efforts of those who preceded us. It has the lowest death rate, with the possible exception of one state, of all the states east of the Mississippi. The provisional rate from all causes exclusive of stillbirths in 1931 was 10.3, and from all causes exclusive of stillbirths, homicides and accidents, over which public health has no control, was 9.8.

In 1914 tuberculosis, typhoid fever and diphtheria caused an aggregate of 4,471 deaths and gave a rate of 191 per 100,000. In 1931 these three diseases were responsible for only 2,648 deaths, with a death rate of 82.3. Had the 1914 rate prevailed last year these diseases would have caused 6,144 deaths instead of 2,648, and they would have caused 30,000 more cases of sickness than was actually experienced. In other words, had the same rate prevailed in 1931 as in 1914, there would have been

an average of thirty-five funerals more in each county from these three diseases alone than actually happened. Fairness impels me to say that the major fight against tuberculosis was begun by Dr. L. B. McBrayer and is being led by Doctors McBrayer and McCain and to them and their splendid service and co-laborers goes great credit.

I cannot forego the temptation of calling your attention to a striking and parallel comparison. The death rate in five cities in North Carolina which have ample protection by Standard Milk Ordinance and well-regulated water supply, in 1925 from typhoid fever was 8.6. In 1930 it had dropped to 2.7 and that, too, in the face of the fact that these cities being more or less medical centers contain large institutions which attract patients from a distance. The probability is, had not these cities been credited with deaths from diseases which were imported, the rate would have been two or less. On the other hand, in 1930 the death rate from typhoid fever was 12.7 in five rural, sparsely settled counties which had no Standard Milk Ordinance or sanitary water supply. I give you another striking illustration of the value of health service whether rendered by public agency or private individual; the death rate in North Carolina from diarrhea and enteritis under two years was 81.2 in 1914. It dropped to 22.1 in 1931. Fairness impels me to say that the greatest single factor in this reduction of death rate is the physicians in North Carolina and their valuable and incomparably fine service in health activity.

In conclusion allow me to say that so long as 65,000 people in North Carolina are sick every day of transmissible diseases, an unestimated number of physical defects being projected into the morrow, and a vast number of our citizens more or less physically and mentally deficient, we cannot rest from our labors but must press on. Sometime ago a distinguished member of this Society, in a letter to me, stated, "We go not to battle. We go to WAR!" That's the thing. We go to WAR. This is not a campaign. It is more than that. It is a conflict which must be waged with unrelenting and ceaseless vigor through all the days. Were I not cognizant of the fact that I am sustained by the power of the medical and dental professions, the sanitary engineering profession, and the sympathetic coöperation of organizations like the Parent-Teacher Association, and the coöperative spirit of all our people, I would be disconsolate indeed and hopeless in thought as I view the outlook and see the necessities.

I have a right to appeal specifically and with confidence to the doctors of North Carolina to support the State Board of Health. It is the collective contribution of the medical profession to civilization. Its function was conceived by them. They gave it birth. They nurtured it while it wore its swaddling clothes and they will nurse it now as it toddles about in its infancy. Men of Medicine! The State Health Department is yours, not by accident of discovery or the power of the broad sword of bloody conquest, it is yours by the divine right of creation, but it is yours to be administered through the agency of the State for the good of all the sons and daughters of men. I need you in this trysting hour, when the souls of all are sorely tried. I know the tremendous difficulties under which you are laboring. I know that you cannot much

longer carry the tremendous charity load and public health service which you are bearing, but I beg you to take courage and to carry on. The greatest thing about our State is not its unexcelled climate, its scarcely equalled mountain scenery, its remarkable natural resources, the roar of its ocean tide, the beauty of its sounds, the gorgeous settings of its streams, its many factories, or, indeed, the number of its citizenship, but in the quality of its people. Never has the State called on its men and women and called in vain. It is calling today just as it did in tragic times of past, and just so surely as answered our forebears in stress of war, so, too, will we stand by the Commonwealth. I have faith that we shall answer.

Dr. Burrus: Gentlemen, I just ask for your patience for just a little while. I regret immensely that every attendant at this meeting could not have heard Dr. Parrott. I am now going to ask you to discuss our Secretary's report. I will recognize Dr. Rankin.

Dr. Watson S. Rankin (Charlotte): Mr. Chairman and Gentlemen: I have been impressed, I have been moved, as you have, by the inspirational eloquence, fine spirit and the serious and confident purpose of this splendid report, the courage of the report in the face of the limitations under which the Health Department has worked, appropriations cut from $486,000 to $263,000. The courage of the report under those circumstances carries us back to Foch when he said that his right wing was in retreat and his left wing smashed but he was going to attack. (Applause) That is the sort of courage and that is the sort of leadership which will ultimately win the great victory as they did in the great war.

He said many things, so many fine things that nobody can comment on them here, but if we will carry out of this hall and back to our counties one thing that he said—namely to forget the little things, the little controversies that might divide us, and rally behind the great cause and get behind the common interest and the common ideal—then there will be no question about what can be done for public health in North Carolina.

He said, in discussing policies, that he believed in persuasion first, second and third, and only as a last measure resort to the question of law enforcement. That carries me back to the dear old days of Dr. Lewis who said, "First throw a tussock, then a clod and last of all a rock."

The thing that ran through that report—and it runs through this meeting—that has impressed me is the serious reference to the profession's duty in avoiding governmental participation and governmental control of medicine. I believe that the profession is going to recognize the serious situation it is in.

It isn't, however, so much a question of leadership. No one is allowed now to enter the medical college who hasn't passed through a number of filters. It is only the fellow who can come on up through high school who has a chance at medicine. It is only the fellow who can come on up from the high school and through college who has a chance at medicine. It is only the fellow who is picked from the college and who is again seived through a fine process who ever graduates.

The medical profession is so organized that it is constituted of leaders. There are too many leaders in the profession in proportion to the followers. There are too few of us who are willing to be followers. That is the great weakness of the profession.

Coming back to this matter of state medicine and a consolidated profession with a carefully-considered and a common interest, the first thing that we have got to do, as this man pointed out in discussing the second policy there, is to get together within ourselves and do away with this division, if there is such a division, between preventive and curative medicine.

You may be interested to know that Dr. Henry Vaughan, Health Officer of Detroit, has been doing some very, very interesting work along that line during the last year. In all the campaigns there now in the immunization of the population against diphtheria, the city merely organized the campaign and the profession is doing the work, and the city pays for it. Dr. Vaughan is going on into a program to restrict the present incidence of tuberculosis. However, the whole idea there is a close coördination, a carefully considered plan that embodies, coördinates the interests and activities of both the Health Department and the physician.

The Kellogg Foundation has that as one of its major purposes, and in a county in Michigan the whole idea of public health work is carried out simply by one man as an administrator—something like the Secretary of a Chamber of Commerce—and the doctors are doing all the work.

The American Public Health Association has recently constituted a Committee on which there is a representative of the Executive Board of the American Medical Association, to make a careful study of this whole thing, bringing about a closer coördination between these two interests in medicine—the preventive and the curative, with the idea of conserving the interests of both the practitioner and the public health.

And so there is great promise that there will be a more consolidated profession, interested in giving medical care not only in the field of prevention but in the field of cure.

Now that is going to be very necessary to stave off this thing that we keep hearing so much about and that is an imminent threat—state medicine. I am only going to call your attention to just one set of figures. I am talking too long, I know.

It costs the United States $2,750,000,000 for education. That is the amount spent out of tax funds and out of philanthropy. That includes Davidson College and Wake Forest College and the State University and all the public schools; that includes the whole expense of education in the United States—two billion and three-quarters of a million dollars.

We know that about $2 out of every $3 that is spent in taxes or that is collected in taxes is spent on education. Now, my friends, the Committee on the Cost of Medical Care has shown beyond any question of doubt that the cost of medical care in this country is $3,100,000,000 or considerably more than the cost of education.

Now you just think of the possibility of the government entering the field of medical service; and if it enters it as it did in education, it

will take over more and more and more of it until medicine is handled as a matter of public administration.

When we add to the taxes that this country is now burdened with the possible tax that will come from state medicine, I don't know what is going to happen.

I move, Mr. Chairman, that this report be accepted and made a part of the transactions of the North Carolina State Medical Society. (Applause)

. . . The motion was seconded and adopted.

Dr. T. W. M. Long (Roanoke Rapids): Mr. President and Gentlemen of the Medical Society: In the span of years that a merciful providence has permitted me to be an humble citizen of this great state. I have sat under the spell of the words of that great statesman and soldier, Matt Ransom, the eloquence of that immortal Acar, the great words of the Kitchin boys and those who now lead our thought and action in this state.

As a lowly member of the last General Assembly long session, it was my privilege in an humble capacity to shape matters of legislation affecting the State Board of Health, an organization that is ours, that has been ours for all time, and one that we will keep as long as North Carolina exists.

There was a movement on foot to take from your hands the personnel of those who directs its destinies and put it in the hands of other departments, but John Burrus here and others got busy and that was stopped. With the wise guidance of a number of members of the medical profession of this state, a bill was passed for the reorganization of the State Board of Health, keeping that within our hands for all time.

I was asked, as a great number of other gentlemen in the medical profession in the state were asked by those in authority, those who direct our governmental destinies a question something like this, "You come here and say this is yours, that you created it, it is a child of your hands, you doctors; now who is your Moses to lead out of the wilderness of despair?" I replied, "His name is like the lighthouse on the rocky shore, a man who has the utmost confidence, respect, love and affection of every doctor in North Carolina, and he isn't but one and his name is Jim Parrott." (Applause)

The matchless, the wise eloquence that has fallen from his lips today is our guiding spirit and star in matters affecting the health of all the people of this state. That justifies every word that I said and that every one of the balance of them said who brought his name to the front.

What makes it eloquent, gentlemen? What makes it greater than any medical address ever delivered in this state? It is that simple sincerity that runs through it all, his love of this great state of ours, now in the throes of distress and, above all, his love for the mistress of us all, the greatest profession on earth next to that of the holy ministry—the medical profession of ours.

I am proud of him, and as long as a drop of blood flows in my veins he has my support as a simple country doctor on the banks of the Roanoke River, and I believe that thing will echo from the mountains to

the sea, that simple statement that I made to you here now—I am for you and God bless you. (Applause)

Dr. J. M. Templeton (Cary): Until I heard the nominating speeches here this morning I must confess that I felt I had brass enough to face almost any audience, but after listening to them I feel, sir, as if I were in the presence of a galaxy of medical men, super doctors, sort of, and I must confess to a feeling of diffidence in addressing you.

However, I would be untrue to myself if I failed to express my appreciation and admiration for the man we have placed at the head of the Health Department in North Carolina. Mr. Chairman, there is but one thing necessary to give him the success that is visioned in his dreams, and that is for every man in this profession to line up behind him like my friend who has just spoken, uphold his hands, go back to the people and say to them that this is your work and you must furnish the money to support him, and they will do it.

Why, such arguments for health, such statements of the greatness of the future of our people ought to be known. That is all our people need to make them stand by the policy he has outlined, and I, too, pledge you my support, sir, in this work. (Applause)

Dr. Burrus: Gentlemen, there is a motion before you that this report be accepted. It has been seconded. Is there any discussion of the motion? Does any one desire to discuss Dr. Parrott's report further?

Dr. D. A. Garrison (Gastonia): Mr. President, I would just like to say one word in support of that report. I have heard quite a number, they have all been good. For a good number of years I have been attending this Society. To realize the growth and the progress of the profession in North Carolina is astounding to me, and the support that this Board is getting because, gentlemen, (I am not throwing rocks at anybody and I am not throwing bouquets at anybody) the reorganization of this Board meant more to North Carolina than the reorganization of anything that has been done in it since I have been here.

They have put men on it here who have their hearts in it. Jim Parrott has his heart in it. I believe in education, but education without training and thought isn't worth a cent. He has got it. I want to pledge to him anything that old Gaston can do for you. Thank you, gentlemen. (Applause)

Dr. Burrus: Do I hear any other discussion of this report? Before I put the question, I would like to make a statement and I particularly hope that Dr. Wright will take cognizance. In the past, Dr. Wright, it seems that things have just been so arranged and so fixed that this Conjoint Session gets a bad break somehow or other. Now I wonder if we could not have it arranged next year so that nothing could come in and interfere with the workings of this session and the opportunity to fully present these matters.

Dr. J. B. Wright: I will give you all the choice of the program. (Applause)

Dr. Garrison: Have it just before an election and you will get them here.

Dr. Burrus: That is a good suggestion, Dr. Garrison.

Is there any one else who will discuss this report? If not, all in favor of the motion will say "aye"; opposed "no." It is carried.

Is there any other business to come before this conjoint session? If not, we will stand adjourned.

. . . Thereupon the Conjoint Session adjourned at one twenty-five p. m. . . .

SCIENTIFIC SECTIONS

SECTION ON SURGERY
SECTION ON PEDIATRICS
SECTION ON EYE, EAR, NOSE AND THROAT
SECTION ON PRACTICE OF MEDICINE
SECTION ON GYNECOLOGY AND OBSTETRICS
SECTION ON PUBLIC HEALTH AND EDUCATION

SECTION ON SURGERY

TUESDAY AFTERNOON, APRIL 19, 1932

The meeting convened in Lecture Room "A," Hotel Robert E. Lee, Winston-Salem, at two-fifteen o'clock, Dr. Roy B. McKnight, Charlotte, Chairman, presiding.

CHAIRMAN MCKNIGHT: I want to announce that there will be a time limit of fifteen minutes on each paper and discussion will be limited to five minutes. We are going to call time promptly so that we can get through with our program.

The first paper is one on, "Diabetes—From the Surgical Standpoint," by Drs. J. F. Robertson and D. R. Murchison, of Wilmington. . . . This paper was presented by Dr. Murchison and illustrated with slides. . . . (Applause)

At the present time diabetic patients are living longer and are consequently subject to various complications, both of a surgical as well as medical nature. From the standpoint of surgery, the two most frequent types of complications are subcutaneous infections and vascular changes.

Infection in diabetes is the most frequent, important, and serious complication. It is serious because it works in two ways: on the one hand, it aggravates the diabetes by reducing the carbohydrate tolerance, inhibiting the usual effectiveness of insulin, and renders more likely the development of acidosis; on the other hand, the patient with diabetes does not have the same resistance against infection that a non-diabetic has. As an illustration, a patient who had remained sugar-free on a maintenance diet, while working hard on a farm, acquired mumps, with the result that his carbohydrate tolerance was quickly reduced, sugar appeared in his urine, and abscesses developed deep in the muscles of a thigh, and sub-periosteal abscesses at the head of the tibia. On admission to the hospital his diet had to be much reduced and his insulin dosage much increased. Surgical drainage of the abscesses restored him to his former diabetic level. Another patient had a perinephric abscess, arrived at the hospital in acidosis and impending coma, and had a long tedious convalescence, in spite of surgery.

Obviously, then, the policy of today is to treat any surgical complication in a diabetic practically in the same way as the same disease in a non-diabetic, but the diabetes must be considered equally as important as the complication. Treatment of the two must go hand in hand, and preferably in coöperation between the surgeon and internist.

No discussion on the treatment can omit at least a word as to prophylaxis. Dr. Joslin says, "a patient should keep his feet as clean as his face." He should use great care in attention to corns, callouses, or bunions, since infection so frequently follows if antisepsis is not observed; properly fitted shoes are important, since ulcers are otherwise prone to develop; sitting with one leg crossed over another produces some circulatory disturbance in the leg and foot, and should therefore be particularly avoided by those who have any vascular changes, either

as sclerosis or endarteritis, in the feet and legs. General cleanliness of the skin must be maintained, and it goes without saying that a diabetic should avoid all exposure to known infection, particularly the respiratory infections.

Given an infection which requires surgical intervention, whether it be a carbuncle, appendicitis, lung abscess, or what not, the first consideration is to get the diabetes under control if possible, or as nearly under control as time and urgency of the surgical condition permits. From twelve to twenty-four hours should be sufficient in the urgent cases, and in the extreme cases much less time. The patient should be given fluids, food, and insulin up to one or two hours preceding the operation. Fluids are most important and should be given by mouth, rectum, subcutaneously, or intravenously. Food, such as orange juice, should be given every hour or two before the operation, and if the operation is scheduled to come as late as twelve o'clock noon, the patient should have his usual breakfast. The insulin dosage depends, of course, on several factors, among which are the amount of sugar in blood and urine, presence or absence of ketonuria, amount of carbohydrates in the diet, and resistance of the patient to insulin.

In the choice of anesthetics, local or spinal anaesthesia, or nitrous oxide, are very satisfactory and probably most used in this section. Ethylene is widely used and seems to be about as satisfactory as nitrous oxide, and far safer than ether, which is so apt to be followed by acidosis.

After operation it is desirable to continue the administration of fluids and food and insulin, as soon as possible. If operation is prolonged, salt infusion by vein is started before the patient leaves the operating room, and orange juice with or without insulin is started within two hours after operation. It is then that a patient is so apt to have an unpleasant insulin shock, but this can be avoided by urinalysis or blood glucose determination. It is proper to return to solid food within twelve or twenty-four hours, and this is frequently possible.

Convalescence in a favorable case is apt to be uneventful. In fact, it is often possible to increase the food steadily, particularly the carbohydrate allowance, and also to reduce the insulin ration, even to the point of omitting it entirely. In unfavorable cases conditions have to be dealt with as they arise. Acidosis, which is not infrequent, is best combated by the use of fluids and insulin. The value of administration of alkalis, as sodium bicarbonate, is questionable, Dr. Joslin being one of those who hold out against it. If the patient is not doing well, the surgeon should assure himself that he has eradicated all infection, or at least as much as is safe to do. Oftentimes, when the patient's general strength and resistance are poor, when he has no appetite, and perhaps the operative wound is slow to heal, a blood transfusion may turn the course of events towards a more rapid recovery.

In gangrene there are two major questions to decide: namely, when and where to amputate. It is admitted that some legs have been needlessly sacrificed; it is also admitted that some patients have been subjected to a long period of suffering and expense because the physician, or surgeon, waits, hoping to avoid operation or to save a little tissue.

The question of when to operate is best answered by the presence or absence of infection. If infection is absent, it is safer to postpone operation, and with various measures such as heat, Buerger's passive exercises, and later active exercise, a small area of apparent gangrene may clear up with the development of sufficient collateral circulation. However, if infection is present, as is so often the case, even though not suspected, the earlier the operation the better, as soon as the patient's general condition permits. Where there is active inflammation, with lymphangitis, McKittrick and Root advise from one to a few days of preparation, with the foot elevated. The same authors, working in Joslin's clinic, have formulated general policies and indications for operation as follows: (a) gangrene of one or more toes; (b) severe pain, with or without a small area of local gangrene which has not yielded to conservative treatment; (c) deep or extensive infection which endangers life because of the patient's poor general condition; (d) a severe diabetic crisis demanding relief from the burden of sepsis; (e) economic exhaustion.

The degree of collateral circulation is sometimes difficult to determine, and after trial of several special tests, such as the oscillometer, thermocouple, X-ray, injection of sodium iodide into the artery, or of salt solution or histamine into the skin, McKittrick and Root have discarded them, to rely largely upon extent of temperature and color changes, pain, appearance of the local lesion, and pulsation of the peripheral arteries.

CASE RECORD

R. L., aged 24, was admitted to the hospital October 13, 1930, with the complaint of cough, fever, loss of appetite and strength, and shortness of breath. Sugar had been found in his urine first one year before, during life insurance examination. On admission, the most striking feature was the rapid labored respiration, with laboratory evidence of marked acidosis, although he was quite alert mentally. Energetic treatment of the acidosis was begun at once, and within twelve hours his blood sugar was normal, as was also his urine. X-ray No. 1 of his chest then showed a large triangular area in the right lower lobe with its base to the periphery. The physical signs of consolidation extended and within a few days there was produced a very offensive sputum, putrid in odor, tinged with blood, indicating abscess formation, with cavitation. (X-ray No. 2) Twelve days after admission, thoracotomy was done by Dr. J. F. Robertson, with drainage of a large empyema cavity, containing pus having an odor resembling that of the colon bacillus. The patient began at once to improve, and his convalescence was uneventful. He was discharged November 9, 1930.

SECOND ADMISSION

He returned to the hospital February 5, 1931, a little over two months later, on account of an acute respiratory infection, when it was found that he had a purulent maxillary and frontal sinusitis, carbuncle of the nose and otitis media. Dr. F. P. Powers incised the ear drum, which was followed by prompt healing. He also performed internal antrotomy,

and with a few subsequent irrigations the sinuses cleared. The carbuncle on the nose remained as the major problem, and was followed by cellulitis which spread to the right face and eye. The general condition of the patient was very poor, with constant fever, rapid pulse, high leucocytosis, poor appetite, and delirium, and it was thought by all of those who attended him, as well as by his family, that he could not survive. For this reason, and partly because excision of the carbuncle would have necessitated a very radical procedure, it was decided to postpone surgery on the nose. This decision proved wise, inasmuch as the carbuncle finally pointed into the nasal cavity, and cleared. In the meantime, evidence of cavernous sinus thrombosis had developed, on the fourth day after admission, this diagnosis being supported by exophthalmos, papilledema, and blindness. The first blood for culture was taken that day, resulting in a growth of staphylococci and streptococci. The same organisms were found on three subsequent occasions, always with the staphylococci predominating. Eleven days after admission, the first of a series of subcutaneous abscesses was incised, the first in the right arm, the next in the left arm, others in the left subscapular region, left sacral region, right axilla, right eyelid, etc., all of which were obviously metastatic abscesses, which cleared more or less satisfactorily after incision and drainage. (X-ray No. 3) February 24th, about three weeks after admission, a cough developed followed by progressive signs of consolidation in the left chest, as shown in the X-ray film. This cleared in two weeks (X-ray No. 4), and with it his general condition was much improved, after which his convalescence began and continued until his discharge for home March 22nd, having had two negative blood cultures. He was seen five months later when he had a severe backache. He then showed marked kyphosis, and osteomyelitis of the fourth and fifth lumbar vertebrae, as proven by the X-ray.

CASE RECORD

W. M., aged 70 years, was admitted to the hospital May 6, 1930. He first learned he had diabetes three years before, after he had bruised his left leg with the development of a sore which was slow in healing. Sugar had been present in urine at all subsequent examinations. His complaint was pain in both feet, the onset having been ten days previously after his feet became wet. The left foot was first painful with some discoloration appearing three days later, starting in the toes and gradually spreading up the foot. At this time pain appeared in the right foot, which became blue with later development of red streaks up the lower third of the leg.

On examination there was black, dry gangrene in the left great toe at its tip, and some bluish red discoloration of the 2nd, 3rd, and 4th toes. The right foot showed the same discoloration of the toes and anterior surface of the foot, with red streaks up the lower part of the leg. There was no sensation to light touch in the sole of the right foot, and only slight sensation in the left. Both feet were painful to pressure. Pulsation in the dorsalis pedis, posterior tibial and peroneal arteries was absent on the left side and very faint in the right foot. There

was arterio-sclerosis with BP 200/100, accentuated second aortic sound and frequent extrasystoles.

Temperature on admission was 98.6°, to go to 100.6° later in the day, and averaging 100° for the next twelve days. The pulse averaged 100, and respiration 22. WBC was 31,800, with 90% PMN. Blood sugar was 420 mgms. per cent. Amputation of the right leg, at junction of upper middle thirds, was done May 10, 1930, four days after admission, and six days later his left great toe was amputated. Spinocain anaesthesia was used for both operations. He was discharged May 26, 1930, having had no fever, or sugar in the urine, during the last four days.

CASE RECORD

J. S., aged 55 years, was admitted September 1, 1931, complaining of diabetes mellitus, and of a carbuncle on his right wrist, palmar surface, two inches in diameter. He had generalized arterio-sclerosis, and marked retinitis with hemorrhages and almost total failure of vision in both eyes.

On admission his temperature was 99.2°, soon going to 102.4°, and fluctuating between 100° and 103.4° for the first five days. The white blood count was 20,000 and PMN 87%. The red blood count was 3,330,000 and hemoglobin 60%. The urine contained moderate albumin and sugar but no acetone. Blood sugar was 300 mgms. per cent. His right arm was amputated two inches above the elbow September 5, 1931, whereupon there was a drop in temperature to remain at 100° or less for about three weeks when he developed carbuncles on his back. A series of these was excised, the last on September 30. In another five days, October 5, 1931, he became afebrile and remained so throughout the rest of his stay in the hospital which ended October 18.

CASE RECORD

A. W., aged 48 years, was admitted April 20, 1929, complaining of diabetes mellitus, and of carbuncles on his chest and buttocks. The diabetes had first been discovered eight or ten years before, at which time his weight was 230 pounds, and since then he had lost weight down to 160 pounds. On admission he had much sugar in his urine, a high blood sugar (300 mgms. per cent), leucocytosis, but no fever. The next day the carbuncles were excised, and he promptly became sugar-free, to remain so during the rest of his twelve days stay in the hospital.

In August, furunculosis developed, and with it a recurrence of pain in the sole of his left foot, which he had first noticed one year before. This pain gradually became worse, and was accompanied by bluish discoloration of his toes, which at first were extremely tender, later losing all sensation.

He therefore returned to the hospital September 7, 1929, and under gas anaesthesia the left leg was amputated because of the gangrene which had developed. His convalescence was uneventful, his urine becoming sugar-free on the third day and remaining so until his discharge, fifteen days after admission. Blood sugar was 290 mgms. per cent on admission and 220 mgms. per cent at discharge.

DISCUSSION

Dr. W. H. Sprunt, Jr. (Winston-Salem): I feel a great hesitancy in discussing this paper. I think the authors have covered the subject very ably from the medical viewpoint.

It has been my own custom to depend largely on the medical man to tell me when to operate. I depend on him almost entirely to get the patient in shape from the diabetic point of view so that he will stand operation. From the surgical point of view, I have felt that anesthesia was probably one of the most important points. Where possible we have used spinal or regional anesthesia. I don't care much for local infiltration. It is very possible it has something to do with the slow healing. Where we can't use spinal or regional we use gas, either ethylene or the nitrous oxid. My experience with diabetes in surgery has been rather limited but due to the coöperation of the internist has been very gratifying. (Applause)

Dr. Stephen W. Davis (Charlotte): Mr. President, I hadn't opportunity to hear all of Dr. Murchison's paper, which I very much regret; I anticipate the pleasure of reading it.

I have had tragic experiences in two cases with diabetic gangrene, one of which occurred when I was an interne, the other since I started practicing in Charlotte.

While an interne, in my enthusiasm to save a woman's leg, I deferred surgical consultation too long. The guillotine operation was done but the lymphatics had carried the infection high up. She had a stormy course before she finally recovered, lost her leg and almost lost her life because of delayed amputation.

Recently, Dr. T. C. Bost of Charlotte invited me to see a patient in consultation with him. It was a man who had an extensive gangrene and I am afraid that I vacillated too long in this case because despite amputation the patient died a toxic death.

I cannot advise too strongly drastic surgical procedures in diabetes when indicated.

It was my privilege about a week ago to observe the work being done by Dr. Isaac Starr, Dr. Leon Collins and others, at the University Hospital in Philadelphia, in diabetic gangrene of the lower extremities. They are using new methods in the treatment of the wet type of gangrene. The devices used resemble cradles, which permits the application of heat to dehydrate the edematous and boggy tissues, and in addition while medical control of the diabetic condition is being brought about they supply oxygen to stimulate epithelialization of the gangrenous areas; and the combination of heat and oxygen can be controlled to a point that relieves pain.

I am not prepared to give you any specific data on this point, but it appears there is something being brought forward as an adjunct to insulin in the control of diabetes of the gangrenous type. Its application will probably relieve you gentlemen of that unhappy event that occurs when you have to amputate. It has been my experience that no surgeon with a heart likes to amputate because when he does he is removing a member of the body which cannot be restored.

Dr. J. F. Robertson (Closing Discussion): Mr. Chairman, may I say a word?

I just want to thank these gentlemen for their discussion of Dr. Murchison's and my paper.

I should like also to emphasize the importance of remembering—and I think it is just a matter of remembering—the symptoms that you get in impending coma. Sometimes we see cases of impending coma that have symptoms simulating an acute intra-abdominal condition.

I had that experience recently where a patient had nausea and vomiting and severe abdominal pain and rigidity, giving almost every evidence of having some acute abdominal condition.

But those patients have other signs that we must look for which we would easily recognize if we remembered to think of diabetic coma, namely, the urinalysis, of course, the blood examination, and the typical breathing that you get with an impending coma.

Chairman McKnight: The next paper is, "Perforating Wounds of the Abdomen Received from Rifle, Pistol and Shotgun Missiles, Reporting 63 Cases," by Dr. B. C. Willis, of Rocky Mount.

Dr. Willis: Mr. Chairman, Members of the Surgical Section: This is simply a narrative of the cases at our hospital. It is not a review of the literature. It is a simple statement of what has been our experience.

PENETRATING WOUNDS OF THE ABDOMEN RECEIVED FROM PISTOL, RIFLE, AND SHOTGUN MISSILES, REPORTING SIXTY-THREE CASES

By Byrd Charles Willis, M.D., F.A.C.S., Surgical Service, Park View Hospital, Rocky Mount, North Carolina

Penetrating wounds of the abdomen, even without injury to its contents, are quite dangerous. Those involving its contents are doubly dangerous unless given immediate surgical attention. There are three sources of danger: hemorrhage, infection from within and infection from without. Each patient must be treated according to the individual's injury, for rarely are two similar cases seen.

The history is of value only as to the length of time elapsing since receipt of wound, the distance from the muzzle and the direction. The calibre of single missile is of less importance. Recent eating should be noted. The passage of blood in vomitus, bowel movement and urine should be inquired into. The state of general health and the age should be considered. Except in unusual injuries of the abdominal contents, the time elapsing between receipt of the injury and operation is probably the greatest single factor in the recovery of all patients whose injury is not great enough in itself to cause death, as is the case in so many shotgun wounds received at short range. The amount of hemorrhage and leakage of colon contents, with its secondary peritonitis, are the two great factors which are directly influenced by time. Of course, a direct injury to a large blood vessel will cause death so rapidly that it is impossible for the surgeon to reach patient in time when they are distant from the hospital. What can the physician do to control hemorrhage? Prescribe absolute rest, large doses of morphine, flat posture if wounded

in upper abdomen, moderate elevation of upper trunk if wounded in lower abdomen; the latter in order to prevent the spread of infection into the upper abdomen, as in infections of the pelvis. After cleansing wound margin, packing of shotgun wounds with sterile gauze should be done to prevent hemorrhage and escape of viscera with subsequent soiling. Nothing by mouth should be allowed these patients as many of them have most unexpected injuries and multiple organs involved. The hospital should be notified immediately and the patient transported thither. The former is very important so that the crew and the surgeon may be ready.

The ideal method of treating hemorrhage is transfusion, either immediately before or during the operation; blood transfusion can rarely be practiced, as there is usually an associated injury of some portion of the intestinal tract. Acacia is a good substitute and should be a part of the hospital armamentarium. The difficulty of doing an immediate transfusion is great, since as a rule, in the small hospitals, the crew's entire attention is given to the surgery. This method of combatting the shock and loss of blood must be adopted if we hope materially to reduce the present mortality. A number of donors should be typed who would respond immediately to call. It would then be necessary to type only the recipient. Many patients might have been saved in the past if given advantage of transfusion as we do today.

In the South, the surgeons should consider themselves on the firing line at all hours. One should not fail to hasten operation because of patient's generally good condition, for shock may set in very suddenly when loss of blood, either externally or internally, has been sufficient to upset the vascular system and its nervous control.

In treating infections subsequent to perforations of the viscera, the length of time from soiling to operation is of paramount importance. In many of these cases perforation of the colon with escape of feces has occurred, yet patient will recover if operated upon within two or three hours after receipt of injury. Perforations of the stomach and small intestines, even though received four to six hours before operation, are not very dangerous even when localized peritonitis is evident. Some of these are closed without drainage, as in perforating duodenal ulcers.

In all cases certain routine treatment should be carried out; these include intravenous glucose and hypodermoclysis of saline; application of heat; prohibiting everything by mouth; anti-tetanic and perfringens serums; liberal use of morphine for "splinting" the abdomen, and general good nursing. The use of enemas before or after operation in injuries of the lower ileum or colon should not be allowed. The bowel will move, and more safely, without assistance.

This paper is based upon the study of 63 cases of perforation of the abdomen admitted to the Park View Hospital and Bass Memorial Hospital to the service of Drs. Boice and Willis and treated by one or both during the past seventeen years. Many of these were operated upon around midnight. These patients ranged in age from 6 to 65 years, and 54 of them were between 10 and 30 years of age inclusive. Therefore, the young and robust adult is the usual case treated here. There were 55 males and 8 females. Ten (10) of these were white and 53 were

colored. The period of time elapsing between receipt of the injury and admission to the hospital was approximately obtained in 51 cases, 19 being received in 2 hours; 21, between 2 and 5 hours; 7, from 5 to 10 hours; 4, from 10 to 15 hours; 1, 30 hours; and 1, 4 days (abscess due to perforation unsuspected). The loss of time between admission to the hospital and the operation is also a factor in our opinion. 31 of these patients were operated upon within 1 hour (shortest, 5 minutes), over 1 hour and within 2 hours, 12; 2 hours to 5, 6; 6 to 10 hours, 2; and one was allowed to remain in the hospital 7 days to wall off his abscess. This was the patient who was sent in on the fourth day.

Two patients were so moribund that they were not operated upon. In 6, the time of the arrival of the patient was not recorded. The distance and mode of transportation to hospital is important. A few of these cases were from the city; the great majority from a few miles to seventy, the greater number coming from seventeen to forty miles. They were conveyed by automobile, some sitting up and others reclining on the back seat.

We classified this series according to the amount of hemorrhage, since Mason (1), of Birmingham, reported a much higher mortality in the large hemorrhage group, and we agree with his findings.

	Large hemorrhage	Died	Percentage	Total %
Pistol shot	24	11	46	
Shotgun	6	6	100	56.66—
	Small hemorrhage	**Died**	**Percentage**	**Total %**
Pistol shot	24	3	12.5	
Shotgun	4	0	0	10.71—

This complication is more apt to occur in the shotgun wounds inflicted at close range.

We further classified these by number of perforations of the solid and hollow viscera, considering the point of perforation and its exit as two separate perforations in the hollow viscera, and as one in the solid. Seventeen had one to two perforations; thirteen, had three, four, and five perforations; twelve, had six to ten perforations; ten had over ten perforations and six were classified as numerous or shotgun wounds. Three abdominally shotgun wounded survived without operation; therefore we are unable to specify the number of perforations. In two, a bullet passed through the abdomen without perforation of organ. One of these had a perforation of right renal vein and died of secondary hemorrhage 12 hours after operation.

In this series 12 had one organ involved; 25 had two; 9 had three; 8 had four; 2, had five; 5 were not operated upon. These included every organ of the abdomen except the suprarenal gland and spleen. One involved the ureter; three, the urinary bladder; two, the gall-bladder or ducts; many, the liver and stomach; many had both colon and small intestines injured at the same time, and a few had one or the other. The pancreas was involved three times. One had three ruptures of an exploded stomach, one of which was about 13 centimeters in length in the anterior wall (shotgun case). It is not so much the organ involved, excepting the pancreas, but extent of the injury that counts.

Pancreatic wounds are oftener fatal; acute pancreatitis is apt to follow, and retro-peritoneal hemorrhage is usually large. Duodenal injuries are particularly difficult to treat because of hemorrhage obscuring field of injury and the necessity of mobilizing duodenum and retroperitoneal infection.

Classification according to weapon:

	Case	Operated	Not operated	Died	Mortality %
Pistol	47	46	1	15	32
Rifle	2	2	0	0	0
Shotgun	14	10	4	7	50
Totals	63	58	5	22	35

One each of the pistol and shotgun groups were so moribund that they were not operated upon; the former died in 18 hours and the latter, in 6 hours. Three of the non-operative shotgun cases survived.

Classification of deaths as to time of occurrence following operation:

	Died on Table	Within 48 Hours	After 48 Hours
Pistol shot	3	6	5
Shotgun	1	5	0

There was only one post-operative obstruction that was operated upon, and the patient survived, with an enterostomy. There were other post-operative obstruction cases, both partial and complete, among those who died. Some were recognized but the condition was so critical that it would not permit interference. Four were enterostomized at time of operation, for fear of obstruction, and we think this a very valuable procedure, especially where there are perforations below an anastamosis, or two few perforations to justify resection but enough to greatly impair bowel movement.

Only 3 patients were transfused, but we agree with Mason (2) that this should be done more often.

The blood pressure was recorded in 24 persons. Of those recorded, five were below 80 mm of mercury, and 19 over 100; many of the most desperate cases were not read.

Practically every patient received hypodermoclysis on the operating table, the amount varying from 300 to 3300 c.c., and it was kept up after putting them to bed, varying from 24 hours to 7 days, giving 100-200 c.c. an hour. Herndon's intravenous drip method with 5% glucose works very well in these cases.

Five patients received more than one pistol shot wound. One developed pneumonia and empyema; 16 had a mild peritonitis at the time of operation; 10 had complicating chest wounds, most of these severe, and many died; four had bone fractures, and in 25 the bullet or shot lodged in the back. The pulse rate varied from 68 to 170 at beginning of operation, and the great majority were over 100. The upper abdomen was involved in 35; both the lower and upper in 3; the lower, in 25. Upper abdominal wounds are considered more serious, due to more vital organs and larger blood vessels. In 12 it was necessary to do an anastomosis of the bowel. In one it was necessary to do two anastomoses, as the

bowel was exploded and torn across without actual injury by missiles. This patient was a shotgun case with a large perforation of anterior wall of descending colon with wads and shot in left perirenal space; he survived. He had a temporary fecal fistula. Twelve patients were deliberately not drained, and of these eight lived.

Those who survived operation stayed in the hospital from 12 to 57 days. Practically all received anti-tetanic serum, and a great many had anti-perfringens. Fifty had ether anesthesia. Two had ether and spinal anesthesia; four had spinal anesthesia alone; two of these died. We do not believe spinal anesthesia is a safe anesthetic in these cases. One had local anesthetic; one did not require any anesthetic as the opening was so great in the anterior abdominal wall that his insensitive organs could readily be repaired. Two were moribund; and three, deliberately not operated upon, we believing this was the best treatment. These three are the real basis for reporting this series, and their histories are as follows:

Case 1. Negro youth, age 16, admitted to hospital June 27th, 1928, stating he had been shot four hours before. He was shot 30 feet from muzzle with number 4 bird shot, and vomited blood. On examination, there were eight shot holes scattered over the abdominal region. Pulse 75, temperature normal. He was given anti-tetanic serum, nothing by mouth, and hypodermoclysis. On fifth day he was allowed liquid diet and discharged well on the 10th day. X-ray films were made before discharge, showing some shot had apparently penetrated the abdomen. Picture No. 1 of diagram.

Case 2. Negro, age 23, entered the hospital one hour after being shot by 12 gauge gun, number 6 bird shot, muzzle about 9 feet distant and about 4 feet above him. The load entered lower border, right, costal margin in nipple line. There were numerous shot holes, some coalescing, over an area 11 centimeters in diameter. He was not shocked; had eaten nothing that night. He was not operated upon. He was given morphine, grains a sixth every four hours; glucose, grams 100 intravenously on alternate days, and nothing by mouth for eight days. Anterior and lateral X-ray films made about 8th day, showed numerous scattered shot in the right half of abdomen, reaching from costal margin to symphysis, and back in lumbar region. Colon pus discharged through shot holes for nearly three weeks. Patient was discharged well on the 29th day, returning at intervals for several dressings. Pictures No. 2, 3, and 4.

Case 3. Negress, age 15, was admitted to hospital 1:30 A.M., September 19th, 1931, for shotgun wound, abdomen, chest, left forearm and right thigh. Temperature was 98 degrees Fahrenheit, pulse 84. Patient stated she was sitting in nightgown on edge of bed about 10:30 P.M., "to-night" when she was shot. The gun was twelve gauge and muzzle was about 12 feet from her. The load passed through window pane. She was sitting with right side about 45 degrees angle to window. Practically three-fourths of load was received in the right half of abdomen, a few scattered shot in chest, breasts, right thigh, and left forearm. She was carried to hospital, put to bed, wounds dressed with hot packs of boric acid solution, morphine, grains one-sixth, every four hours

ordered, and nothing given by mouth. Hypodermoclysis, normal saline 100 to 200 c.c., every hour started, and fifteen hundred units anti-toxin and ten c.c., anaerobic anti-toxin given.

By the 5th day the temperature had gradually risen to 103.5 degrees, becoming normal on the 13th day. Pulse rose to 120 per minute on second day and remained at that rate, with slight variation, until the 6th day. Nothing was allowed by mouth until 8th day. She was given 100 grams glucose intravenously in 1000 c.c. of distilled water on 3rd, 5th, 7th, 8th, and 9th day. She left the hospital on the 25th day, apparently well. The abdomen was examined from day to day for peritonitis and abscess. Pictures No. 4 and 5.

Case 4. Negro man, age 50, admitted to the hospital December 12th, 1930, with pistol shot wound of abdomen, and operated upon but died on the table. During exploration of abdomen two bird shot were found in liver and one noted in gall-bladder wall. He no doubt had other shot that were not found. Patient had been previously shot and recovered.

We wish to call particular attention to the inadvisability of operating upon shotgun wounds when small bird shots have scattered throughout the abdomen, as it is hopeless and useless to try to locate all the perforations. These perforations are small and as Bunch (3) says, there is no pouting of mucosa through openings. His descriptions are so clear as to the types of wounds that I wish to quote him as follows.

"Wounds made at a distance, after the pattern of the scattering shot has enlarged and the load is no longer massed, are those of the many individual shot. A small pistol-ball may make many intestinal perforations, and a load of scattered shot striking the abdomen may cause numberless perforations. A single shot may pass through the abdomen without penetrating blood vessel or intestine, but many shots cannot pass through the abdominal wall without injury to the underlying viscera. If the shot penetrating the gut is large, the hole made by it is large and the everted mucosa pouts through the opening automatically, keeping the wound open and preventing the probability of spontaneous healing. A shot, if it pass longitudinally through the gut-wall, may slit it for an inch or more. If the shot penetrating the intestine is small, the opening made by it may be so small that the mucosa does not pout through the serosa. Such a wound appears as an elongated pink dot or dash on the gut-wall. The edges fall together in proper apposition and heal readily without surgical help if the gut be kept at rest. Owing to the number of missiles penetrating the abdomen, and the vascularity of the viscera, internal hemorrhage is apt to be free. Multiple hematomas form in the mesentery, making particularly difficult the recognition of gut injury."

We would particularly urge that these patients be put to bed with the head of bed elevated at a 10-15 degree angle; nothing by mouth; morphine sufficient to keep them quiet; hypodermoclysis of saline or intravenous 5% glucose with proper sterilization and dressing of external abdominal wound. Tetanus and perfringens serums should be given and a watchful waiting policy followed. If these patients are operated upon the surgeon will succeed only in milking the infection through the holes in the intestines, greatly shocking patient, and efforts will be rewarded by a general peritonitis and death. Bunch of Columbia, S. C., reported

operating upon one of these patients who was in very good condition, and after closing numerous perforations, gave up the task, realizing that there were many more; closed the abdomen, and the patient died two hours later.

We have been expecting some of these patients to have secondary abscesses or severe hemorrhage, and no doubt they will occur and require operation.

The mortality in this series of 63 cases with 22 deaths is 35%.

BIBLIOGRAPHY

1. Mason, J. M., Ann. Surg., 1924, lxxix, 382-385.
2. Mason, J. M., Ann. Surg., 1923, lxxviii, 364-369.
3. Bunch, G. H., Southern Surgical Transactions, 1928, xli, 38-48.

DR. H. A. ROYSTER (Raleigh): Dr. Willis is to be commended for presenting this paper. His work has been thoroughly analyzed. I don't know of any study which has been made of so large a number of cases, nor do I know anyone who has presented a lower mortality. As one of those who has been on the "firing-line" for a long time and as all of us live below the "Mason and Dixon" line, it is very timely that such discussions as these should be brought out at this kind of meeting. With the exception of the city of Chicago, I suppose we can all claim to have our share more largely than any other portion of the country of these gunshot wounds, and most of them happen to be in Negro men, of course.

Dr. Willis has made two important suggestions in regard to those who first see these patients, namely, that attention should be given to the shock and the transportation of the patient quickly and comfortably. Shock, of course, is due largely to hemorrhage. There may be some cases in which a large nerve trunk or some extensive portion of the abdominal sympathetics may be injured, adding to the shock.

His mortality of thirty-five per cent is about one-half of the usual mortality which has been going on for the long number of years which this report covers and I think his good results are due largely to his timely interference and his preparation of the patient in the way he describes.

Of course, it stands to reason that early operation in these cases, after they have been prepared against further shock, is the keynote. This early operation must be done even in those cases which do not appear to be penetrating, much less perforating wounds. There is of course a great difference but that difference cannot be determined until the abdomen is opened.

Many of us know cases in which there appears to be, by external observation even, no penetration of the abdominal wall but on opening these patients many times we find not only that the missile has gone through but there is distinct and definite injury to some viscus. The exception to immediate operation, which Dr. Willis has indicated as outlined in three cases, to my mind exhibits a proper conservative judgment. With widely scattered small birdshot, it is often impossible to determine where the lesion is, even after the abdomen is explored and therefore it seems to me that he exerted the proper judgment in such

cases by allowing the injured area to be walled off or perhaps to establish some definite point which might be entered later.

I therefore believe that the reading of this paper and the discussion which may follow will be of value to all of us no matter how much experience or how little experience we have had. (Applause)

CHAIRMAN McKNIGHT: Is there any further discussion?

DR. JOHN P. KENNEDY (Charlotte): Mr. Chairman, some time ago in looking over the records of a similar series of cases at the Good Samaritan Hospital at Charlotte which as you know is a colored institution I found that the mortality record was fifty per cent. That seems about the average percentage of mortality over the country. Some hospitals report a considerably higher mortality.

The mortality is due to three things largely. One, of course, Dr. Willis has mentioned and that is hemorrhage and he tells you how we may lower that mortality by transfusion.

Another is infection, and of course the sooner the operation the less likelihood there is of infection.

The third is overlooking injuries.

In a series of cases at the Pennsylvania Hospital in which a large number of autopsies were had on those cases which proved fatal it was found that a surprising number of injuries had been overlooked, showing the importance, in operating on these cases, of examining very carefully and methodically to find out whether you have repaired all the injuries.

At times, with a bullet wound near the side of the abdomen or near the upper abdomen or pelvis, it is a little difficult to determine in your own mind whether the abdomen has been penetrated by the bullet, if you are not able to locate the bullet. In certain cases I have found the fluoroscope of aid in locating the bullet. It will help you to determine just what route the bullet took through the abdomen.

In regard to shotgun wounds, I think this is true: that if the patient improves with morphine and saline and the pulse comes down below 100 or 120 the probability is that there is very little hemorrhage and those cases, unless the injury was very close at hand, had best not be operated upon because if the perforations are small and there is no eversion of the mucosa the probability is that if those cases are left undisturbed they will improve, barring hemorrhage which would necessitate operation.

In some hospitals they have made this rule: that all the hypertension cases in the hospital will be examined previously with Wassermann and also their blood type, and then if an emergency like this came into the hospital they would have a suitable donor to transfuse the patient immediately. (Applause)

DR. A. G. BRENIZER (Charlotte): I don't recall what percentage of that group were Negroes but I have been persuaded from my experience with Negro surgery that a nigger will stand very much more infection in his abdomen than a white man will.

Those results of Dr. Willis are excellent and far above what any of the rest of us are getting but at the same time I must say operations

done for perforations on the nigger will always yield you much better results than on whites.

Dr. T. C. Bost (Charlotte): I was very much interested in the report that Dr. Kennedy mentioned in connection with the autopsy work done at the Pennsylvania Hospital in which they did a high percentage of autopsies on the cases and they found about twenty per cent of overlooked injuries which the pathologists thought were a great factor in the causation of death.

That is a pretty big thing, to think that we are overlooking anything like eighteen or twenty per cent of injuries that might result in a fatality.

Here I would emphasize the more generous use of blood transfusion to better prepare patients for thorough exploration. I think we have had a tendency to neglect this. Most of the abdomens I open that have intra-abdominal injuries also have injuries of the mesenteric vessels and frequently a large amount of blood in the abdomen. Naturally, these patients are severely shocked and the blood volume needs to be replaced. It needs to be replaced early, before the operation and perhaps during the operation and as many times after the operation as is necessary to bring it up to the required volume, which in turn builds up the patient's resistance.

So I would emphasize the more generous use of blood transfusions in connection with these cases.

There is one other point, about the technique. Of course I realize that all these cases fall in a group to themselves, individually, but especially where you have had a multiple injury, by a large missile or a large body, to the small intestines which curl around on themselves so much that frequently the injuries are very, very close together, and it is very humiliating in these cases to spend your time doing what you think is a nice clean anastamosis and move over a foot distance and find the same thing has to be done over again.

I think some of you recall that last year I reported to this Society a case in which the intestine was cut completely in two places and a hole in another place, all within three feet, which would have made practically three anastamoses necessary but by excising this section only one anastamosis was necessary.

Since that time I had a case in which the patient had ten perforations. It had been done by a large bullet which had hit bone and became deflected and cut these ten perforations which made twenty holes. So large was the missile that the intestine was practically cut in two at each perforation. And this damage all fell within about three feet. It was just so much time saved to resect these three feet of intestine and make one anastamosis, which of course means much to the patient because these patients are shocked and time is a great factor.

Here again, by the more generous use of transfusions you can get your patient in sufficiently good shape to make a more thorough exploration and repair any defects that might otherwise be overlooked. (Applause)

Dr. Willis (closing discussion): I should like to say that in these three cases without operation we did not have any serious hemorrhage intra-abdominally, nor did we have secondary abscess develop. We examined these patients repeatedly for the complications but found none.

I read the report from the Pennsylvania Hospital and the most striking thing about that report was that they enumerated the surgeons (not the names but the grades of the surgeons) that operated upon these patients. It said the attending surgeon, the associate surgeon, the assistant surgeon, and the house doctor. Now, the most important part of that report was left out: How many of these patients were operated upon by the house doctor?

I think that perforations of the abdomen by bullets require more surgical skill to find all of these perforations than do many other operations, such as gastroenterostomies. They are not to be compared with the finding of these perforations.

I should like further to say that these cases were operated upon either by my associate, Dr. Boice, or myself and were followed through. They were not turned over to internes, and I think that is a very important thing: that the senior surgeon see these cases and follow them through, no matter whether they are white or colored, if you want to lower the mortality. (Applause)

Chairman McKnight: The next paper is, "Relation of Radiology to Surgery," by Dr. G. C. Cooke, of Winston-Salem.

THE RELATION OF ROENTGENOLOGY TO SURGERY

By G. C. Cooke

This paper is being presented upon the basis of thirteen years of experience in the combination subjects of radiology and surgery. It is to deal with a few phases of the subjects which have impressed me as a result of such a combination in practice, and feeling that they are of such importance that they should be more generally experienced, am taking this opportunity to pass along the idea for your consideration.

In the first consideration, one should recognize the intimate association of radiology and surgery from the standpoint of diagnosis; secondly, since radiation both X-ray and radium have become recognized as potent therapeutic agents in many conditions that were formally treated by surgery alone, the two are now closely related. It is my belief that many diseased conditions have suffered, at least individually, and the sum total of our progress has been lessened by lack of correlation of these two great agencies.

To take up the discussion from the standpoint of diagnosis, we will at once remember that these two subjects are considered separate specialties within themselves. In the more highly and up to date centers, it is even more noticeable than in the smaller hospitals and practices. I would not for one moment condemn the present trend toward specialization, but I cannot see how medicine, as a whole, will progress to its fullest possibilities, when one develops one phase of medicine at the expense of another. I do not believe it possible, for the roentgenologist who gives his entire time to the X-ray department, even in the large and varied practice, to have as intimate and accurate knowledge of the subjects, as the man of the smaller experience who follows his every patient through the X-ray examination, to the operating table, and finally through the patient's convalescence. In examining the abdomen at oper-

ation, either as surgeon or assistant, two hundred cases of disease, or suspected disease, of gall-bladder whom I had previously studied thoroughly, from the history, and from the X-ray, I am positive that I have learned much that I could not have any other way. Of course, the operative findings, as well as the follow up records, can be discussed at the staff meetings, or privately between the two specialists, but the more perfect correlation, and the more rapid advance can be made by each actually seeing the others findings. It is not enough, even if he could do it, for the roentgenologist to state to the surgeon that this patient does or does not have gall-bladder disease, or ulcer of the stomach. Even if the diagnosis is positive, the surgeon should have all the information that the roentgenologist has been able to obtain before operation. The surgeon cannot only appreciate the position of the lesion, with relation to the organ, nor can he fully appreciate the position and condition of the organ itself, unless he sees the fleuroscopic and plate findings with the patient in the different positions. This latter information may not be held as necessary by the average surgeon, but one who uses it in many instances will be able to properly adapt one procedure where another equally well recommended would be unsuccessful. When one has had the experience of finding, during an X-ray examination, a suspected gall-bladder disease, the duodenal cap normal in size, shape, and contour, but tilted toward the left, and especially when pressure with the finger is made, in an effort to move the duodenum downward and to the left under the fluoroscope, and definite pain is thereby produced, then finding at operation a dense band of adhesions between the duodenum and the gall-bladder, and when for a period of years after operation of these adhesions and removing the gall-bladder, all symptoms are abated, one cannot help but believe that he has found and recognizes a pathognomonic sign that he could not have otherwise fully appreciated. A better example of what I wish to tell you, is in the case of orthoapedict surgeon and the roentgenologist, because of the fact, that of necessity these are more closely associated. and are better correlated than other surgical aspects, even though they should not be. The abdominal surgeon should study his cases as thoroughly during the X-ray examination as the orthoapedist. Likewise the roentgenologist, who aspires to reach his highest capacity, must follow every case possible to the operating room, and correlate his findings, and in a great per cent of cases his correlation will not be complete at this stage, but the roentgenologist will only know that his diagnosis has been correct when a close study of the follow up record shows that the patient has been cured. It is a very easy matter, and therefore a very preferable method, for the surgeon to order a patient "X-rayed," or to send him from his office across town to an X-ray clinic, and read the reports and accept them as final for a diagnosis. This is becoming a very prevalent habit in the profession today, and such practice is a detriment to the profession, because, it does not only limit the surgeon's information, but the roentgenologist becomes retrograde because of his lack of checking up on every opinion.

Not only does this apply to old or the usual procedures, but it is especially applicable to the checking up and valuation of new proced-

ures. For instance, the use of dyes in gall-bladder studies has become very prevalent, but colocystography alone should not be depended upon for an ultimatum in diagnosis of gall-bladder disease, especially in negative findings. In one hundred and sixty cases, 88 per cent were found positive, while operation showed definite disease in 92 per cent. If the barium meal had been used in all the negative cases, it may have been that a one hundred per cent diagnosis could have been obtained. I am sure that there are many cases of indigestion and abdominal distress that have as their origin disease of the gall-bladder, yet it cannot be demonstrated by colocystography, because the shape and emptying time of the gall-bladder have not been interfered with. The disease may be entirely intramural infection, or adhesions between the ducts and the intestinal walls which will interfere with motility, and thereby produce stasis and fermentation in the elementary canal. This situation is more often demonstrated with the barium meal.

There are numerous instances I could cite in my contention, that there should be a closer correlation between the subjects, but I will only have time here to mention one other condition; namely: that of endoscopy. This is a condition that is as yet new, but one of such wide interest that it should attract a wider and more routine development. Because of the very numerous conditions, such information would be of great benefit, all roentgenologists should take advantage of every opportunity to view the lungs and the esophagus through the endoscope, and checking up with findings both for himself and the endoscopist with X-ray examination. In other words let the surgeon consider the roentgenologist more than the technician, and the roentgenologist more interested in pathological findings and ultimate results of treatment, along with his interest in collecting his fee.

A more important phase of the subject can be studied from the standpoint of therapeutics. It is first important to realize that there are more non-cancerous conditions that are amenable to X-ray and radium-theraphy than there are cancers, but when we realize the appalling, and increased death rate today from neoplastic disease, even in spite of all our methods of defense, we must admit our weakness in combating this situation. In spite of all our extensive research and developments in medical, surgical, and physical therapeutic agents, the malady is surging ahead of us. In view of these facts, is it anything less than deplorable that any life should be lost from the lack of any one of these agencies, or the injudicious application of all of them, yet I am convinced that lives are lost and are continuing to be lost, because of one or the other, and sometimes both of these faults. If I am correct in forming an opinion from actual experience, and can get the idea to be studied thoroughly by men at large, either sufficiently to approve or disapprove this work, I shall feel amply repaid for any effort, as well as time, consumed in presenting this paper. The procedure which I refer to, is that of combined radiation and surgery. It is to be admitted that most surgeons do now recognize the value of radiation, and are fairly well referring the post-operative cases to the roentgenologist with conscientious regularity. But this is not the mistake of greatest importance. In the gap of convalescence between a surgical procedure

and the period when a patient is able to go to the X-ray department, or to receive an application of radium, wide dissemination of a lesion may be affected purely as a result of the surgical manipulations, which renders the radition procedure worthless. This can be more fully appreciated when we remember that work has been done which proves that radiation is not as effective upon transplanted cells as when applied to cells insitu, or to the area where the cells are to be transplanted. This by ordinary logic would teach us that the proper time for radiation combined with surgery for the prevention of metastasis is pre-operative. Now there are many conditions which account for the lack of adequate pre-operative radiation, one of these is because of the fact that too few surgeons are sufficiently closely associated with reputable roentgenological service. Of course, it behooves the surgeon to get every case that he can, and it comforts him to say that if the surgical procedure on a doubtful case should prove inadequate he can always refer it for radiation later, but then it is oftentimes too late. In many cases the surgeon is confronted with the possibility that there will be such remission of symptoms as result of radiation, that he will not have the opportunity to carry out post-radiative service, or maybe, radiation may prove adequate, and the surgeon lose the case entirely, but these are not of sufficient weight as excuses for us not to at least advise the best we have for the patient. There are those who contend that operative procedures are interfered with by pre-operative radiation, and this may be true in a very few instances. However, after doing thyroidectomies, hysterectomies, cervical adenectomies, surface excisions, and breast amputations after radiation, I am sure that if the time of operation is properly chosen that this hindrance is not sufficient to warrant argument. It might be well to state that the operation should be done at a stage following remission of radiation hyperemia, and before dense fibrosis has had time to ensue.

There are other reasons why there should be more consideration of both agencies, namely: the condition of the patient, both from the standpoint of physical, as well as his economic condition. In the former a patient may present a definite surgical condition, but who would be necessarily subjected to a hazard by any surgical procedure. This same condition may be as thoroughly abated by use of radiation without the hazards attendant to surgery. A case at hand will illustrate what I mean—a white woman 45 years old, who has had a nephrectomy 10 years before, and now has pyelitis of her only kidney. She also has metrorrhagia and menorragia with a fibroid the size of an orange. She was sent to me by her family physician for a hysterectomy, but I feel that it is definitely wiser to treat this woman with radium. It is definitely our duty to consider the patient's economic status as well as his physical condition, and it is no truer the case during the stages of prosperity, than during our present situation. We should give the patient the cheapest and shortest cure. This applies to the surgeon and roentgenologist alike. While I am sure the patient in the case just mentioned has been properly treated by the cheapest, least hazardous, and shortest method, there are other conditions which may be treated cheaper by surgery than by conservative methods, because, it is not enough to

consider the initial cost, but the time the patient may be off the job, which in many cases may amount to the greatest cost.

In conclusion it is a contention that there are many evils which can be remedied by a closer and more conscientious and unprejudiced correlation of the subjects of radiology and surgery. Also we will advance more rapidly in our ability to prolong life and increase happiness of mankind by such correlations.

BIBLIOGRAPHY

Case, James T.: Diverticula of Small Intestine, Other Than Meckel's Diverticulum. Jour. Am. Med. Assn., Nov. 27, 1920, LXXV, 1463.

Cole, L. G., and Roberts, D.: Diverticula of the Duodenum. Surg., Gynec. and Obst., 1920, XXXI, 376.

Larimore, Joseph W., and Graham, Evarts A.: Diverticula and Duplicature of the Duodenum with Reference to the Importance of Cholecystitis in the Production of Symptoms. Surg., Gynec. and Obst., Sept., 1927, LXXVI, 783.

Lucinian, Joseph H.: Diverticulum of the Duodenum. Radiology, XVII, 829, 832.

Lucinian, Joseph H.: Diverticulum of the Duodenum Perforated into the Pancreas, Report of a Case. Am. Jour. Roentgenol. and Rad. Ther., Dec., 1930, XXIV, 684, 685.

McKiney, J. T.: Diverticula of the Duodenum. Southern Med. Jour., Sept., 1931, XXIV, 753.

Nagel, Gunther W.: Unusual Conditions in the Duodenum and Their Significance; Membranous Obstruction of Lumen, Diverticula, and Carcinoma. Arch. Surg., Oct., 1925, XI, 529, 549.

Dr. R. O. Lyday (Greensboro): Mr. Chairman, I was very much interested in Dr. Cooke's discussion of the combination of these two specialties, I might say. In his particular case Dr. Cooke is more fortunate than most of the rest of us, I am sure, because he has developed himself in both fields whereas, for myself, I think it would be only fair to admit that I don't know anything about roentgenology and for that reason I believe it would not be applicable to the average surgeon, certainly. I feel that a good deal of harm would come from delving too deeply into both of these very important fields of medicine.

I do feel that a good many of us are not fair with the roentgenologist who is more or less closely associated with us in our diagnoses of cases, that we often fail to notify him when an interesting operation upon a patient whom he has studied is to be done when he has spent considerable time in unraveling the mysteries of the patient's troubles, and we neglect even to inform him in detail as to what is found at operation.

I know that does occur and this places him at a great disadvantage. He is not able to follow the cases through. Therefore I feel that by proper coöperation between us and the roentgenologist the patient will get, in the average town, much better service than he will if we try to do both X-ray work and surgery ourselves.

As for the effects of X-ray treatment in certain cases preceding operation, I have not seen any great amount of difficult adhesions produced by the X-ray treatment, which made the operation any more

difficult. In fact a number of times I have had the experience of doing operations like thyroidectomy and someone who was looking on would say, "The problem is much greater because you have had X-ray treatments in this case. It so happened that none of these had had X-ray therapy.

Dr. Booker E. Rhudy (Greensboro): I am sorry I didn't get here in time to hear all of Dr. Cooke's paper and I am therefore not capable of discussing it, but I would like to say that I fully agree with Dr. Cooke. I feel that there must be coöperation between the surgeon, and the radiologist or roentgenologist in order to serve our patients to the best advantage.

As to the surgeon doing his own X-ray work, I think that depends a great deal on the ability of the individual. Personally, I have never felt that I could do radiology to the best advantage and also do the other things at the same time.

I believe that if we will make a greater effort to coöperate with and to refer work to the radiologist our patients will be better served. (Applause)

Chairman McKnight: Is there any further discussion, gentlemen? If not I will ask Dr. Cooke to close.

Dr. Cooke (Closing Discussion): I want to thank Dr. Lyday and the others for their discussion and at the same time state that I did not mean to infer that I wanted anybody to take up radiology and surgery together. I feel like my life has been hampered by doing it and seeing the mistakes in my own life I ask other people not to make the same ones. But I ask the surgeon and radiologist to be more friendly.

Chairman McKnight: Gentlemen, the fourth paper is, "Vaginal Ureterolithotomy," by Dr. D. B. Cobb, of Goldsboro. (Applause)

Dr. Cobb: Gentlemen, five years ago after I did my first operation by removing a stone from the lower ureter through a vaginal incision I looked up the literature to see if anyone else had done this operation before and to my surprise I found the operation had been done and minutely described a great many years before I was born, and I was reminded of one of the aphorisms of Dr. Royster that there is nothing new.

I should like to talk for a few minutes about ureteral stones particularly those stones in the lower ureter and especially their removal through the vagina.

VAGINAL URETERO-LITHOTOMY

By Donnell B. Cobb, M.D., M.S., F.A.C.S.

The management of ureteral calculi presents many problems. Their correct treatment demands a nicety of judgment that is seldom required in handling other lesions of equally common occurrence. No set rule can be laid down; each case calls for an individual solution. Much depends upon the size and location of the stone, its progress down the ureter, the degree of obstruction it is producing, the severity of any co-existing infection and the intensity of suffering caused the patient. The predilec-

tion of the physician in charge for any special procedure, naturally, will have its influence on the line of treatment.

Spontaneous Passage of Stones: There is a marked difference of opinion as regards the proportion of ureteral stones which will pass spontaneously. Deaver estimated that probably 75% will pass without intervention, while Judd in a study of 400 cases found this to be true in only twelve per cent. But, as Ochsner pointed out, this depends very largely upon the class of cases treated. The clinics in municipal hospitals receiving many cases of ureteral calculi which pass easily while those clinics which receive their patients almost exclusively from long distances must have a far smaller percentage of cases whose stones pass spontaneously.

Location of Ureteral Stones: Whereas a stone may lodge in any portion of the ureter, by far the greatest number are found in the lower ureter, below the brim of the pelvis; and especially is this true in women. Young, in 1903, called attention to the fact that "that portion of the ureter lying within the broad ligament is frequently narrowed by disease of the female pelvic organs, and furnishes quite a common point for the impaction of calculi." A stone lodged within the upper two-thirds of the ureter as a rule offers little operative hindrance, but one lodged deep in the pelvic portion may be beset with much difficulty. And since Pugh, Judd and Barney and Chute remind us that from 50% to 75% of ureteral stones are found in the lower third of the ureter a consideration of the method of their treatment seems justified.

Other Methods of Removal: Numerous operative procedures have been devised and carried out for the removal of stones in the pelvic ureter.

Ceci, in 1867, removed a ureteral stone by an incision through the rectum. The patient died 26 hours later. The report of this case laid the foundation for repeated condemnations of this method and no one since has employed it.

In 1892 Cabot mentioned the use of the Kraske incision, removing the coccyx and lower part of the sacrum with division of the sacroiliac ligament. He employed this method successfully as did Ferria also, but he called attention to the difficulty of adequate exposure and the likelihood of hemorrhage from the hemorrhoidal vessels, which he encountered. The severity of the procedure caused its abandonment.

Writing in 1898 Fenwick reported the use of perirectal or transverse perineal incision, separating the rectum from the bladder. Regnier also tried this method but failed and in the same year the statement was made "that stones impacted in the pelvic portion of the ureter were inaccessible to surgical treatment."

Nevertheless Rigby, in 1907, advocated an equally difficult and unsatisfactory method. He advised a para sacral or para rectal incision, differing only from Cabot's procedure in that the coccyx and sacrum were not disturbed. He reported four cases that he had operated upon, but his method failed to gain popularity.

Kelly, in 1914, called attention to the transvesical removal of ureteral stones lodged adjacent to the bladder, using a vesico-vaginal incision for this purpose.

Today, however, the incisions most generally employed for removing stones in the lower ureter are the suprapubic cystotomy and the extraperitoneal approaches suggested by Gibson in 1910 and by Judd in 1914. The Gibson incision is made above and parallel to Poupart's ligament. With its use there is little difficulty in finding the ureter but it is impossible to follow it to its entrance into the bladder. The mid line incision as advocated by Judd permits of the exposure of both ureters if necessary and makes it possible to follow them down to their actual junction with the bladder. This is of inestimable value when the stone is very low down. The exact location of the stone in the lower ureter will determine the preference for the incision.

The cystoscope, almost since its introduction, has been a means of removing or assisting in the passage of stones in the lower ureter. The excellent results obtained and published by Crowell did much to popularize this method and lead to its general efficient employment. By its skillful use many patients have been spared the necessity of an operation. Barney & Chute report more than 50% of stones in the lower ureter removed by this method in the Urological Department of the Massachusetts General Hospital. Bumpus & Thompson of the Mayo Clinic report success in sixty per cent. Squire reports successful removal in 87% of cases at the Crowell Urological Clinic. Such a high percentage of successful results is an enviable record for this method. The procedure is not without danger, however, and Bumpus calls attention to the fact that prolonged intra-ureteral manipulation may cause acute suppurative nephritis. He reports 2 deaths following this method, and I have seen one such case have a fatal termination. The keen joy that is experienced by the cystoscopist in extracting a stone from the ureteral orifice is a strong stimulus to continue treatment in the next case. Such a pleasing anticipation should not prolong treatment beyond the point of safety.

Beer finds it advisable to operate on 34% of patients with stones in the lower ureter. Von Lichtenberg operates on 30% of these cases and says that he "would much rather do the operation early in a certain percentage of cases, feeling the kidney is spared by a careful operation far more than if a long drawn-out, conservative plan of procedure is adopted; although it may be successful in getting the stone the kidney goes on to partial destruction."

Vaginal Removal: It is in certain of these cases of very low ureteral stone in women, in whom cystoscopic removal is impossible or in whom its further trial is contraindicated on account of continuous obstruction, acute renal infection or the patients' intolerance to further manipulation, that vaginal uretero-lithotomy seems to be the method of choice. Considering the close relation of the lower ureter to the antero-lateral vaginal wall it seems strange that this method of approach is so seldom used.

In the female the ureter runs forward and inward beneath the broad ligament, passing beneath the uterine vessels and lying about 2 c.m. from the side of the uterus. Emerging from the anterior surface of the broad ligament it passes obliquely across the antero-lateral vaginal wall with which it is in direct contact and enters the bladder. During this part of

its course it is not covered by peritoneum but is loosely held and supported by connective tissue.

It has been stated that 90% of normal ureters can be palpated through the vagina. But after assiduously attempting to acquire this art for several years I am forced to the conclusion that the vaginal palpation of a ureter is possible only when some abnormality exists. The presence of a catheter in the lower ureter makes it easy to trace its course. A ureter the seat of inflammation or tuberculous infiltration is readily palpable. Stones situated within the ureter at any point between the base of the broad ligament and the bladder are readily felt through the vagina. Cabot and Gorcean have emphasized the possibility of removing these calculi through the vagina.

T. A. Emmet, in 1884, was the first to give an account of vaginal uretero-lithotomy. A thorough review of the literature reveals 45 reported cases. A study of these cases has been made in an effort to properly evaluate the method, and to this number are added four cases of the author. Most writers on this subject have reported only one case and it is somewhat surprising to find that during the past 10 years only 3 articles have appeared dealing with this procedure.

There is an almost unanimity of opinion that the operation should be undertaken only in those cases where the stone is easily palpable and where there is sufficient vaginal relaxation to allow ample exposure and easy manipulation. This is not thoroughly in accord with the views of Lower, however, who has reported more successful cases than anyone else and who states that his "experience includes nulliparous as well as parous women and the removal of stones which were so high that their palpation was barely possible."

The actual technique of removal has differed somewhat with the various operators. Singleton & Morris deem it advisable to pass a catheter up the ureter before operation to aid in its identification. I have done this but I do not believe it to be essential, as a stone which is easily palpable will readily serve as a guide in locating the ureter. Doyen's method of exposure was to incise the anterior cul-de-sac, as in vaginal hysterectomy, separate the bladder from the uterus as high as the vesico-uterine fold and expose the ureter by gauze sponge and finger dissection. The distance between the pelvic wall and the cervix being only about 4 c.m., however, affords a very limited space for delicate manipulation on the ureter, and Robinson, in using this approach found it necessary to ligate the uterine artery. Gorceau used the same incision in the anterior cul-de-sac and after separating the peritoneum between the bladder and the uterus as far as the broad ligament found it possible to "evert the broad ligament backward with the tip of the finger, catch the stone with the tip of the finger, crooked at the last joint, force it down toward the vaginal outlet, cut on it with a very small incision and squeeze it out." Although he describes removing the calculus as "like squeezing a cherry stone out of a ripe cherry" this procedure has the disadvantage of requiring two incisions. The method used by the greatest number of reporters was to make a simple incision through the antero-lateral vaginal wall, in the line of the ureter, the stone acting as a guide, and exposing the ureter, remove the impacted calculus.

There was much difference of opinion as to the necessity of suturing the ureter. Of those who expressed themselves on this the majority were in favor of placing a few interrupted sutures when possible. Some few thought it advisable to place a catheter through the bladder up to the kidney pelvis following the operation. Opinion when expressed was equally divided as to the necessity of suturing the vaginal incision. In the presence of infection it should be left open and when closed, drainage should be provided.

Technique: The technique which I have used is as follows: The patient is placed in the lithotomy position and the vagina exposed with a weighted speculum over the perineum and retractors against the lateral walls. The cervix is grasped with a tenaculum and pulled downward and to the opposite side, thus drawing the base of the bladder and the lower ureter near the introitus. After palpating the stone an incision is made through the antero-lateral vaginal wall in the line of the ureter. The index finger is passed through this incision, the stone and the ureter located and a blunt hook is passed around the ureter above the stone. This prevents the stone from slipping up the ureter and out of reach. By gentle traction on this hook and at the same time releasing the pull on the cervix the ureter and stone are brought through the vaginal incision. The stone can then be readily removed through a longitudinal opening in the ureter. The ureteral incision is closed with two or three interrupted absorbable sutures passed through its outer layers. A rubber tissue drain is placed down to the ureter and is brought out at the lower end of the vaginal incision, which is closed with a continuous suture.

Possible Operative Difficulties: It should be remembered, however, that the uterine vessels and the pelvic peritoneum are not far distant and may be encountered and injured. The difficulties that may arise are similar to those that may occur in the removal of a stone from any portion of the ureter, namely:

1. The slipping of the stone up or down the ureter and away from the field of operation.
2. Hemorrhage.
3. Inadvertently opening the peritoneum.

Four cases are on record in which this operative procedure was unsuccessful, the stone slipping up the ureter and requiring removal by an abdominal incision. But Lower reminds us of the fact "that anyone who has had much experience in the removal of smooth ureteral stones from a dilated ureter will have had cases in which the stone has moved away from its first location. So such changes in the position of ureteral stones are not confined to any type of operation." It must be admitted; however, that the vaginal incision here described can not be enlarged upward to any great extent and with it it is impossible to examine the ureter over so great a length or follow a stone upward as can be done with an abdominal incision. But with the technique now employed the danger that a stone may move upward is greatly lessened.

The only instance of hemorrhage recorded is the case operated upon by Bloch. Here the bleeding was so abundant as to require tamponment.

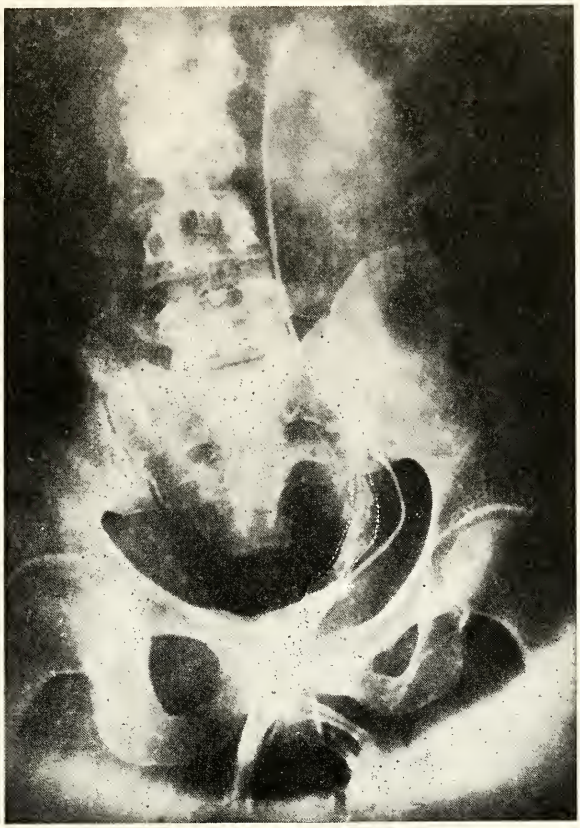
Later, however, Boch removed the vaginal tampon, freed the ureter and removed the calculus.

The error of opening the peritoneal cavity is not mentioned in any of the reports that have appeared in the literature. It did occur, however, in the last of my four operations. Having performed three of these operations with such gratifying results the fourth one was done with enthusiasm. This was a border-line case in which the stone was situated rather high and was barely palpable. It was removed through the vaginal incision but in freeing the ureter the peritoneal cavity was opened. Peritonitis developed either from contamination from the vagina or, more likely, from the infected urine, and resulted in death.

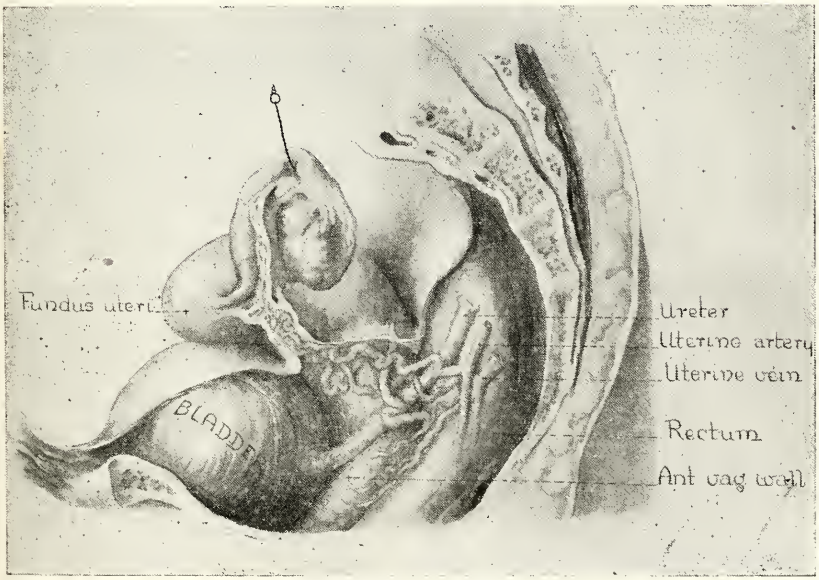
The other death that appears in the literature following this operation was reported by Munde, but no statement is made as to its cause. One of Kelly's cases died sometime following this operation, but here death was due to intra-abdominal adhesions incident to opening the abdomen at the time of removal of the stone. This death should be attributed to the abdominal procedure rather than to the vaginal. Joboulay's case also died but here in addition he performed a nephrotomy and pyelotomy and it would seem justifiable to attribute the death to these more momentous procedures.

Urine Drainage and Fistula: Isreal and Doyen advocated the use of an indwelling ureteral catheter following the operation but they do not state whether this has an effect upon the postoperative drainage of urine from the vagina. The indwelling ureteral catheter was used in the four operations performed by the author; in two there was no postoperative drainage of urine from the vagina but in the other two there was. One of these had urinary leakage for six days and the other drained until the seventh day, when death resulted from peritonitis. In the experience of Pugh all of these cases drain urine through the wound for several days, but Lower states that there "is not likely to be" any leakage of urine postoperatively and some of his cases were able to leave the hospital three or four days after the operation. One of his cases, however, drained urine for twenty-one days, which is the longest time reported. Barnard had a case that drained for ten days and Reed's case had leakage of urine for a few days. Thus it is seen that the period of urinary drainage when it does occur compares very favorably with that which follows the removal of these stones by an abdominal incision. Barney and Chute made a recent survey of lower ureteral stones that had been removed by one of the abdominal approaches and found that "the urinary fistula persisted in these patients an average of 16 days."

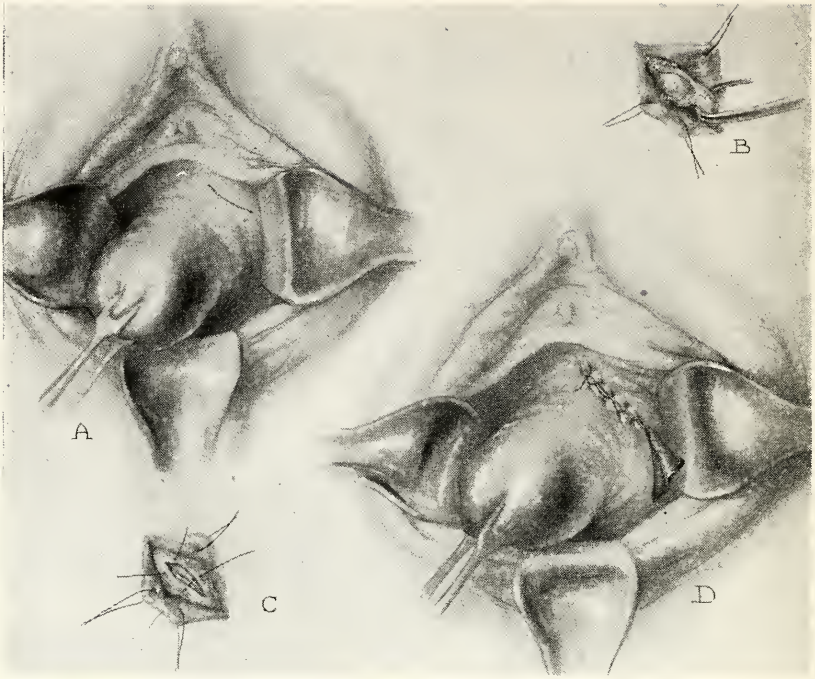
The likelihood of a permanent urinary fistula following the operation seems to have been somewhat exaggerated. Young has referred to "the frequent persistence of fistulae after the vaginal incision," yet in all of the 49 cases which have been studied and are here reviewed this sequela did not develop. In Cabot's case it appears that a functionless pyonephrosis existed on the same side as the ureteral stone, for the moment the stone was removed there was a rush of pus from above. He introduced a rubber tube into the ureter through the vaginal incision and left it in place "for some time, and finally, when the drainage tube was removed, there seemed to be no tendency for the opening to close, there



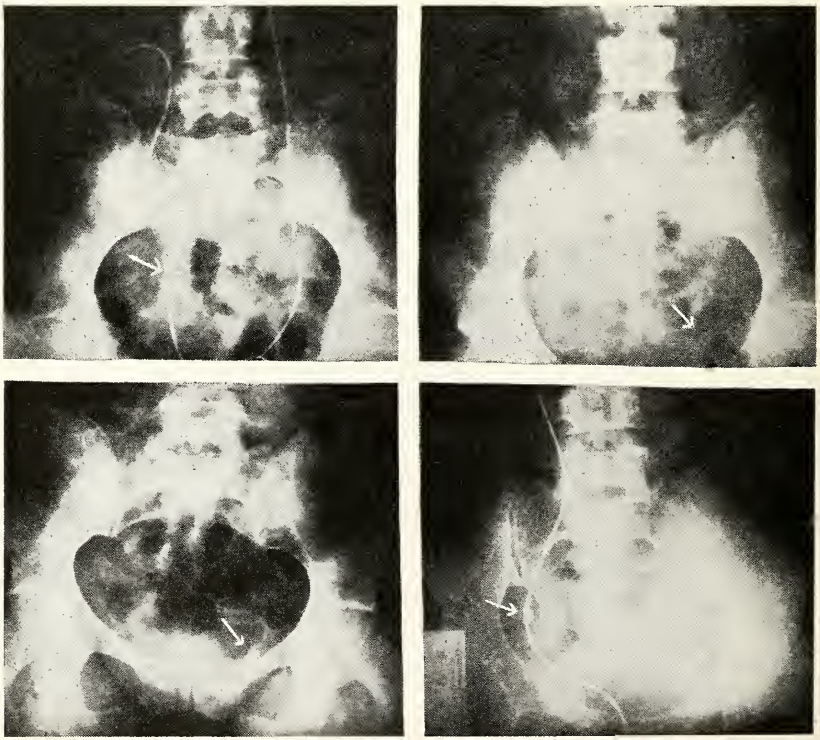
1. Vaginal palpation of lower ureter. X-ray catheter in place. X—uretero-vesicle junction.



2. Anatomical relations of lower ureter. Note close contact between ureter and antero-lateral vaginal wall.



3. Technique of vaginal uretero-lithotomy.
   A. Exposure of vagina and line of incision.
   B. Blunt hook passed around ureter, preventing stone from slipping upward and drawing ureter and stone through vaginal incision.
   C. Closure of ureter following removal of stone.
   D. Closure of vaginal incision. Rubber tissue drain extends down to ureter.



4. Ureteral stones removed by vaginal uretero-lithotomy.

CHART NO. 1

REPORTED CASES OF VAGINAL URETERO-LITHOTOMY

Operator	Cases	Year	Operative Method: Simple incision in line of ureter	Operative Method: Dissection of bladder from uterus	Suture of ureter	Suture of vagina	Postoperative retention catheter	Drainage of vaginal incision	Hemorrhage	Postoperative urine drainage	Fistula	Hospital days
Emmet	1	1884	yes		yes							
Berg	1	1888	Not	stated	yes							
Doyen	3	1892		yes								
		1895					yes					
		1897										
Cabot	1	1892	yes								Pus fistula.	
Cotterel	1	1894	yes				yes				No urine	
Isreal	2	1896	yes		yes	no					drainage	
		1900					yes					
Fenwick	2	1898	yes		no	no						Rapid convalescence
		1903										
Barling	1	1898	yes									
Zuckerkandl	1	1900	yes		yes							
Munde	1	1901	Not	stated	no	no						
Singleton	1	1901	yes		yes							
Kelly	4	1902	yes		yes	yes		yes				
		1914								16 days		
Jaboulay	1	1902		yes	no							
Freger	1	1903	yes									
Jacobs	1	1903	yes		yes							
Gradenwitz	2	1904	yes									
Robinson	1	1904		yes	yes	yes						
Garceau	2	1907	yes		no	yes		yes				
Barnard	2	1907	yes		yes		no	no				
Verboogen	1	1909	yes							10 days		
Bloch	1	1909	yes									
Brentano	1	1911	yes						yes			18 days
Reed	1	1911		yes	no			yes		few days		
Heinsus	1	1913		yes								
Ochsner	1	1919	Not	stated								
Lower	6	1925	yes		yes	yes		yes		"not likely"		3-4 days
Belben	1	1926	yes		yes					longest 21 da.		
Deaver	1	1930										
Pugh	1	1930	yes		yes					few days		
Furniss	1	1931		yes								
Author	4	1932	yes		yes	yes	yes	yes		2 cases 6 days		12 days
Total	49											

being a constant, moderate discharge of pus through it." But "no urine ever came through the fistula." In this connection Fenwick stated that the occurrence of a fistula depended more upon the surgeon, and the condition of the urine, than upon the position of the incision employed.

Comment: Those who have had experience with the removal of stones in the lower ureter through a vaginal incision are highly in favor of this method. Garceau states that "a very low stone, presenting quite near the bladder, is best extracted, of course, through an incision in the vagina." Morris expressed the opinion that "the vaginal method is adopted only for plastic operation on the last part of the ureter, and for calculi impacted in the vesical and juxtavesical part. It has the sanction of experience, and has yielded admirable cures." Lower, who has had more experience than anyone else with this method feels that it is "the simplest, the easiest for the operator and the least disturbing to the patient." The consensus of opinion seems to be that this operative procedure should be reserved for those cases where the stone is readily palpable and where there is sufficient vaginal relaxation to permit adequate exposure. Vaginal uretero-lithotomy, of course, will not be undertaken until after cystoscopic manipulation and extraction has been tried. But the ease with which the operation can be accomplished to both operator and patient would seem to justify its use earlier in the line of treatment of lower ureteral stones in women rather than prolong cystoscopic treatments when little progress is being made. And especially would this be true in those cases where a severe infection is coexisting and where cystoscopic manipulations are poorly tolerated.

Conclusions: On the basis of a personal experience with four operations and a study of all cases it has been possible to find in the literature the following conclusions may be drawn:

1. Vaginal uretero-lithotomy is a comparatively simple method of removing a stone from a location which is often by other methods very difficult.
2. It should be reserved for those cases where the stone is readily palpable and where there is sufficient vaginal relaxation to allow adequate exposure.
3. It affords dependent drainage should urine leakage occur.
4. The possibility of a permanent uretero-vaginal fistula seems to have been exaggerated.
5. An external incision with the attendant possibility of hernia is avoided.
6. It shortens the period of convalescence.

BIBLIOGRAPHY

1. Atkin, I. Cystic dilation of ureter: removal of ureteric calculus per vaginam. Brit. M. J., 1926, i, 568.

2. Barling. Calculus removed from the ureter. Brit. M. J., 1898, i, 561.

3. Barnard. Exhibition of cases. Lancet, London, 1907, i, 293.

4. Barney, J. D. & Chute, R. Management of calculi in lower ureter. J. Urol., Balt., 1931, xxv, 173-180.

5. Beer. Diagnosis and treatment of ureteral calculus. New York State J. Med., 1916, xvi, 501.

6. Belben—quoted by Atkin.

7. Berg—quoted by Pozzi & Proust.

8. Bloch, A. Operations on the ureter. Folia Urolog., 1908, iii, 589-629.

9. Brentano. Zur vaginalen Exzision von Uretersteinen. Deutsche med. Wchnschr., Leipz, u. Berl., 1911, xxxvii, 666.

10. Bull, P. Analysis of 53 operated cases of kidney and ureter calculi. Norsk Mag. f. Laegevidensk., 1925, lxxxvi, 429-458.

11. Bumpus, Herman C. and Thompson, Gersham J. Stones in the Ureter. Surg. Gynec. & Obst. 1930, L 106-109.

12. Cabot, A. T. Observations upon the anatomy and surgery of the ureter. Am. J. M. Sc., 1892, ciii, 43-54.

13. *Idem.* Another successful case of uretero-lithotomy. Boston M. & S. J., 1890, cxxiii, 613-614.

14. *Idem.* Successful case of uretero-lithotomy for an impacted calculus. Boston M. & S. J., 1890, cxxii, 247-249.

15. Cotterell, E. Two cases of uretero-lithotomy. Brit. M. J., Lond., 1894, i, 1022.

16. Crane, Albert M. The diagnosis of ureteral calculi and the problem of their conservative management. Am. J. Surg., 1932, XV 120-129.

17. Deaver, J. B. & Burden, V. G. Surgical management of ureteral calculi. Ann. Surg., Phila., 1930, xci, 85-91.

18. Doyen. Calculus des ureteres. Courrier medical, Par., 1897, pp. 185-186.

19. Emmet, T. A. Principles and practice of gynecology. Philadelphia, 1884, 3rd. ed. p. 796.

20. Fenwick, E. Hurry. Value of ureteric metaoscopy in obscure diseases of kidney. London, 1903; Churchill ed.

21. *Idem.* Operative treatment of calculi which have been lodged for long periods in lower ureter. Edinburgh, J. M., 1898, N. S. III, 281-285.

22. Freyer, P. J. The surgery of the ureter for impacted calculus and some other causes of obstruction. Lancet, Lond., 1903, i, 583-585.

23. Furniss, H. D. Vaginal uretero-lithotomy. (In publication).

24. Garceau, E. Treatment of stones in lower part of ureter in the female. Am. J. Dermat. & Genito-Urin. Dis., St. Louis, 1907, xi, 8.

25. *Idem.* The surgical treatment of ureteral calculus in the female. J. Am. M. Ass., Chicago, 1907, xlix, 1098-1103.

26. Gradenwitz, R. Entfernung eines Uretersteines auf vaginalem Wege. Zentralbl. f. Gynak., Leipz., 1904, xxviii, 385-387.

27. Heinsus, F. Ueber die kystoskopische Diagnose eines Uretersteins und seine Entfernung auf vaginalem Wege. Ztschr. f. Geburtsh. u. Gynak., Stuttg., 1913, lxxiii, 441-451.

28. Israel, J. Operations for ureteral calculi. Folia Urolog., 1912-13, vii, 1-25.

29. *Idem.* The operation for occlusion of the ureter by calculi. Berlinear Klinische Wochenschrift, 1896, 33; 841-844.

30. Jaboulay. Calcul de l'uretere. Lecons cliniques, Lyon, 1903, Storck, ed.

31. Jacobs, C. Un cas de calcul ureteral opere par la voie vaginale. Bull. Soc. Belge de gynec. et d'obst., 1903-4, xiv, 143-44.

32. Jeanbrau, E. Calculi of ureter. Ann. d. mal. d. org. genito-urin., 1910, xxviii, 1-37; 132-177. *Idem.* Compt. rend. Assoc. franc, d'urol., 1910 (1909), xiii, 1-175. *Idem.* Encyclopedic francaise d'urologic, 1914, iii, 787-860.

33. Judd, A. M. Palpitation of ureter per vaginum. Am. J. Obst., 1916, lxxiii, 1082.

34. Judd, E. S. Results of operations for removal of stones from ureter. Ann. Surg., Phila., 1920, lxxi, 128.

35. *Idem.* A method of exposing the lower end of the ureter. Ann. Surg., 1914, 59, 393-395.

36. Kelly, H. A. Operative Gynecology. New York, 1906, I, 539-542.

37. *Idem.* Diseases of the kidneys, ureters and bladders. New York, 1914, II, 159-163.

38. *Idem.* Further notes on uses of wax-tipped catheter in diagnosis of stones in kidney or ureter. Am. J. Obst., 1902, xlvi, 66-70.

39. Lemberger, W. Surgical treatment of deep-seated ureteral stones. Ztschr. f. urol. Chir., 1926, xix, 259-276.

40. von Lichtenberg, A. Treatment of ureteral calculi. Jahresk. f. arztl. Fortbild., 1929, xx, 30-36. (Hft. 4).

41. Lower, W. E. Removal of stone from lower ureter by vaginal route. J. Urol., Balt., 1925, xiv, 113-117.

42. Morris, Henry. Origin and progress of renal surgery, with special reference to stone in kidney and ureter; and to the surgical treatment of calculous anuria. Philadelphia, 1898, p. 16, ff.

43. *Idem.* Surgical Diseases of kidney and ureter. Chicago, 1903. W. T. Keener, ii, 529-530.

44. *Idem.* Calculus in the ureter. Lancet, Lond., 1899, ii, 1644-1657.

45. Munde—quoted by Pozzi & Proust.

46. Ochsner, A. J. Stone in the kidney and ureter. J. Am. M. Ass., 1919, lxxiii, 1105-1109.

47. Pozzi, S. & Proust, R. Contribution a l'etude des calculs de l'uretere pelvien chez la femme; diagnostic et traitement. Rev. de gyenc. et de chir. abd., Par., 1909, xiii, 873-946.

48. Pugh, W. S. Removal of ureteral calculi by vaginal ureterotomy. Surg. Clin. N. Am., Phila., 1930, x, 531-537.

49. Reed, C. A. L. Stone in the ureter; removal by vaginal route; recovery without fistula. Lancet-Clinic, Cincin., 1911, cv, 142.

50. Rigby, H. M. Operative treatment of calculi impacted in pelvic portion of ureter. Ann. Surg., 1907, xlvi, 793-808.

51. Robinson, B. The removal of calculus from the pelvic ureter per vaginam. Med. Standard, Chicago, 1904, xxvii, 63.

52. Sänger, M. Ueber Tastung der Harnleiter beim Weibe. Arch. f. Bynaek., Berl., 1886, xxviii, 54-77; also: Verhandl. d. deutsch. Gesellsch. f. Gynak., Leipz., 1886, i, 64-76; also: Breslau. aerztl. Ztschr., 1886, viii, 160.

53. Schenck, B. R. Four cases of calculi impacted in ureter; nephro-ureterectomy; abdominal uretero-lithotomy; vaginal uretero-lithotomy. J. Am. M. Ass., Chicago, 1901, xxxvi, 1300-1304.

54. Singleton, A. O. Kidney and ureteral calculi. Texas State J. Med., 1922, xvii, 486-489.

55. Squires, Claude B. Disposition of ureteral calculi at the Crowell Clinic from 1915 to March 31, 1930. J. Urol. Balt. 1930, xxiv, 461-462.

56. Sunderland, S. Pelvic pain in women caused by impacted ureteral calculi. Physician & Surg., Lond., 1900, i, 888-890. Also: Med. Press & Circ., Lond., 1900, n.s., lxix, 545-548.

57. Verhoogen. Ann. Soc. Belge d'urol., 1909, No. 1, p. 3.

58. Warkalla, A. Ueber Absperrung der Harnleiter von der Scheide her zu diagnostischen Zwecken. (Nach Versuchen an der Leiche.) Arch. f. Gynaek., Berl., 1886-1887, xxix, 289-307.

59. Young, H. H. The surgery of the lower ureter. Ann. Surg., 1903, xxxvii, 668-710.

60. Zaky, A. Calculi in ureter. Ztschr. f. Urol., 1923, xvii, 541-560.

61. Zuckerkandl—quoted by Pozzi & Proust.

Dr. Robert W. McKay (Charlotte, N. C.): We enjoyed Dr. Cobb's presentation of the vaginal method of treating stones in the lower end of the ureter, and, in his hands the vaginal method has certainly produced excellent results.

We agree fully with his statement, at the beginning of his paper, that no set rule can be laid down for the management of ureteral calculi and that each case demands an individual solution, depending upon the size and location of the stone and the amount of infection and obstruction which it is producing. The tendency of many urologists at the present time is to try and remove all stones in the ureter by ureteral manipulation. I think, perhaps, the pendulum has swung too far. In some cases we manipulate stones that are either too large to pass or on account of the severe amount of obstruction plus infection are producing damage to the renal parenchyma by being allowed to remain in the ureter too long. In dealing with large stones, sometimes we dislodge the stone and bring it down to the juxta vesical portion of the ureter where on account of its size it cannot pass into the bladder and thus in the male a very simple operation is converted into a very difficult one. In the vast majority of ureteral calculi that we hesitate about manipulating we pass a catheter up to the stone, make a McBurney incision, either right or left, strip the peritoneum from the sides of the pelvis; in all cases the ureter comes up with the peritoneum and can be palpated on its under surface. With the index finger the catheter in the ureter is easily palpated and the ureter can be easily freed from the peritoneum. If the stone is too far down in the pelvis the ureter is opened at the point where the McBurney was made and a ureteral stone dislodger is passed either down or up the ureter and the stone manipulated to the point where the ureter is opened.

In spiculated calculi which are wedged with the ureter against the bladder, the position in which the vaginal operation of Dr. Cobb's is done comes in very nicely. They are very difficult to remove in the male and are best attacked by a mid line incision, pushing the bladder to one side without opening it, and going down laterally to the position of the stone. This type of operation requires a large incision and is more difficult in its execution than the simple extra-peritoneal McBurney.

I have seen Dr. Lower of Cleveland carry out the vaginal route as outlined by Dr. Cobb and it is, indeed, a simple procedure in his hands. One thing that the surgeon would be intensely interested in is whether or not one would get a uretero vaginal fistulae. Apparently, they do not occur. Lower, I think, makes the statement that he has never had such a complication result. Dr. Cobb by the vaginal method certainly

converts, in large stones lodged against the bladder, a very difficult upper operation into a very simple lower one by attacking them through the vagina.

Dr. Claude O. Abernethy (Raleigh): I am very much interested in Dr. Cobb's operation. I think it is going to cause some of us to do some of them. Of course, it is limited to women. That is the first disadvantage it has. The advantage it has is that it helps a lot of women.

The most important point, it seems to me, that should be considered in this matter is when to stop using the catheter and when to operate. A stone that comes down below a third of the ureter very often can be removed by proper manipulation of the cystoscope and I think the time to stop manipulating is when you can't get by the stone and the drainage can't be properly done.

Of course, you have to operate on a great many of these cases and I want to congratulate Dr. Cobb on doing these four and presenting them to this Society because I think it opens up for you surgeons a very valuable point.

I don't think many of them have been done in North Carolina and I think Dr. Cobb is a pioneer in that subject here and is to be congratulated on his presentation.

Chairman McKnight: The Chair will ask Dr. Harbison, of Shelby, to take the Chair, if he will, please.

Dr. Harbison: Our next paper is the address of our Chairman, Dr. R. B. McKnight, of Charlotte, on "Surgical Standardization."

SURGICAL STANDARDIZATION

By R. B. McKnight, A.B., M.D., F. A. C. S., Charlotte, N. C.

Generally speaking, there is little evidence of any great interest in fatality rates in hospitals. The American College of Surgeons in its form of application for the use of hospitals in submitting data to show that they are entitled to be accredited, shows a limit of interest to total deaths, deaths within the forty-eight hour period of admission, and the number of postoperative deaths. The Committee of the American Hospital Association limits information on fatalities to deaths within the first forty-eight hours from admission and deaths after forty-eight hours from admission. Very few institutions show little else than a distinct indifference to a complete statement of fatality rates. Notable exceptions to this are the University of Michigan Hospital and the Mayo Clinic. In other words, the data we have is so limited in its scope as to be of little practical value.

Recently Dr. W. S. Rankin, Director of the Hospital Division of the Duke Endowment, compiled and printed certain data concerning the deaths and death rates in major operations performed in eighty general hospitals applying to the Duke Endowment for assistance in 1930. He has kindly given me a number of reprints for distribution, and I submit these to you as a part of my remarks. In studying this report, one is impressed with certain facts: (1) Dr. Rankin is to be highly complimented in his sincere attempt to secure some real data. This is a move, which, in so far as I know, has not been duplicated elsewhere. It is

only a beginning for more comprehensive data to be collected in the future. (2) The data listed is not complete in that it does not give sufficient information to make it of the practical value it should be. Further analytical studies of the report are also necessary. (3) It is sufficiently complete, however, to warrant the statement that the greatest credit cannot be given to the surgical work done in these hospitals as a whole. In making such a statement I am cognizant that we have no similar data with which to contrast this report, but I believe I am right in saying that a similar survey would disclose figures not far different from these.

The idea to make a few remarks on what might be termed "Surgical Standardization" as a chairman's address, came to me as I was studying this report. What I mean is this: In 16,049 abdominal operations, 7,814, or 48.7%, were appendectomies. The report states that there were that number of patients undergoing major surgery, although what it really means is that there were that number of operations performed, since many of these numerous appendices were removed during the course of other abdominal surgical procedures. The mortality rate is given as 2.4% (6.45% in negroes). This, of course, means little. It may be good or not so good. Of all the abdominal operations performed 12.5% were hysterectomy—pan, total or subtotal. Since the sexes are not divided, or adults and children not differentiated, this means that considerably over 25% of women undergoing abdominal section had hysterectomy performed! About the same number had salpingectomy or salpingo-oopherectomy—although there is undoubtedly much overlapping in this contrast. There were 334 Cesarian sections with a gross mortality of 13.47% (37.14% in negro women). Two-thirds as many gall-bladders were drained as were removed and the combined mortality of cholecystectomy and cholecystostomy is 7.2%. Thyroidectomy has a mortality of 3.2%! 16.67% of those patients having gastroenterostomy died. The urologists will be interested to note that the mortality following prostatectomy is over 17% as is that following cystostomy. 11% of those patients having nephrectomy died. When one realized that there were 21,108 *operations* and *not* that many *patients* then the total mortality of 5.22% (9.52% in negroes) will be considerably higher.

It is not my purpose to analyze this report further at present. I only want to present sufficient evidence to justify a few remarks concerning certain standards which should be rigidly adhered to by those doing surgery, and to which those going into surgery should be compelled to follow. I feel that they are entirely reasonable in that there is nothing new and nothing which we do not already know. I believe that if they are followed that there will be an entirely different report in years to come.

1—Clinical, Surgical and Pathological Diagnoses.

(a) A preoperative clinical diagnosis should be made after proper study of the case, recorded on the hospital chart and no operation permitted until this is done. There are cases in which the emergency of the occasion, the presence of vicarious or obscure symptoms, certain rare conditions, and so on, in which it may be difficult or even impossible

to make a reasonable accurate clinical diagnosis. In such an event, a percentage diagnosis should be recorded.

(b) A detailed description of the operation should be written up at its completion and a surgical diagnosis recorded. Let's have the courage to write down "ruptured duodenal ulcer" when such is found, and leave, just as it was written preoperatively, "acute appendicitis."

(c) All tissue removed at operation should be examined and reported by a competent pathologist. As a matter of fact this should be a prerequisite for every hospital conducting a surgical department.

(d) The cause of each death should be recorded. Perhaps there are some of us who like to hide behind the term "medical death"—whatever that is. The fact must remain that the patient is dead, and he has died following operation. It is a surgical death.

2—The Secondary Diagnoses.

Other diseased conditions of the patient should be noted, for upon these may depend the surgical prognosis. Particularly do I stress the obvious importance of urinalysis, blood counts, and, except in emergency cases, blood Wassermann reactions in all patients preoperatively. It is a terrible thing to see a patient die in diabetic coma after a simple operation under ether anesthesia and no record at all of an urinalysis. Not infrequently the knowledge that a patient has a four plus Wassermann will—or should—ward off a serious operation.

3—The Risk of the Operation.

If possible this should be determined, and I believe that it usually can be. I refer to the risk of a particular operation to a particular patient, or of any operation to a particular patient. A case of prostatic obstruction with twenty ounces of residual urine, a blood urea of over 200 mgm. and a phtalein output of 10 per cent is a poor risk. The anemic washer-out ulcer case with gastric retention and nausea and vomiting is a poor risk. The pop-eyed woman, who eats her head off and still loses weight, nervous as she can be and with a basal metabolic rate of plus 80 is a poor risk. In other words the *patient* must be treated so as to reduce the risk of surgery to that particular patient to the lowest possible minimum before an attempt is made to eradicate the disease. A careful preoperative treatment is a great factor in reducing surgical mortality.

4—The operating room and the operating room force should be under the direct charge of a specially trained supervisor. Institutional infections are not due to the surgeon's technic, but it is he who must shoulder the blame; it is he who is the defendant in a law-suit and who must stand the jibes of a designing apostle of justice.

5—There is much virtue in the standardization of technic. By this I do not mean to imply that because Dr. So-and-So does this operation in a certain way, and it happens to bear his name, that you or I must use the same technical maneuvers. Maybe it would be better if we did! An operation is like any other form of therapy in that it must be applied to the existing condition in a particular patient. Yet there are certain technical principles which we must follow if we expect to lessen the likelihood of postoperative catastrophes and give the patient the best chance to get well and enjoy the benefits of his treatment. I cannot help

but believe that this is one of the chief reasons why the mortality and morbidity statistics of the Mayo Clinic compare so favorably with those elsewhere. Not only do they make every effort to diagnose their patients, but when an operation is performed, it is done by one trained at the institution, and who has been taught to follow certain principles of technic that are found to be scientifically sound.

6—The anesthetic should be given more consideration than it frequently is. That anesthetic which is chosen to fit the particular patient and the patient's condition is the anesthetic of choice. Here in North Carolina we not infrequently have the problem to face of the referring doctor administering the anesthetic. Because Dr. Blank refers a patient for surgery is no earthly reason why he should give the anesthetic unless he is perfectly capable of so doing. Nor is that any reason why the patient should have an ether anesthetic so that the doctor can administer it, when we may know well enough that some other anesthetic agent is more clearly indicated. I know of no more highly specialized branch of medicine than that of a trained anesthetist.

7—There are certain standards of postoperative care which we should follow carefully. Most important of all is a careful and intelligent observation of our patient. Many a life has been saved by the administration of sufficient fluids to supply the body tissues with water. A collapsing circulation, a state of shock, or a slow insidious hemorrhage has ofttimes been alleviated by a timely blood transfusion. Not infrequently the judicious use of such simple appliances as a rectal tube, stomach pump, Jutte tube or a mustard plaster has so relieved a condition of distress as to turn the tide to a favorable outcome. We should anticipate untoward reactions and complications and by vigorous and timely effort combat them.

These standards have been repeatedly stressed to us as students, under proper supervision we carried them out during our interne days, we followed them to a letter during our period of surgical training and those of us trained in the art and science of surgery practice them in our daily work. Why then is it that the figures you have before you do not reflect credit on North Carolina surgery as a whole? Does not the answer lie in the operator himself? Facilities have been made more accessible through the policies of the Duke Endowment whereby the doctor untrained in surgical technic and unskilled in surgical judgment is permitted in an unrestricted manner to do his own operating. This gives us two classes of men doing surgery: (1) Those who have passed through their period of apprenticeship and devote their whole time and efforts to the practice of their specialty, and (2) the "occasional operator," the part time man, who in the vast majority of instances is an untrained and unskilled operator and one whose judgment is not to be relied upon. Dr. Harbin of Rome, Ga., presented some interesting figures to the American College of Surgeons two years ago. He showed that in the State of Georgia the mortality rates of the "occasional operator" was over 100% higher than that of the full time man. I do not believe that the way to meet and overcome an undesirable situation is by denying or ignoring its existence. The question then arises: What

is to be done about it? Let us change the query to, what can be done about it?

The American College of Surgeons can refuse to accredit those institutions which show a mortality rate of 17% in prostatectomy, or 3.2% in thyroidectomy. At least they are in a position to force the professional staff to take some decided action, and check up on those doing surgery so as to find out why such a mortality rate exists, and report such findings to the College. The Duke Endowment or any other such agency can refuse financial assistance to those institutions where surgical standards do not meet a reasonable requirement, and what is more it can let the people know why such assistance is refused and thereby render the public a much greater service than in establishing hospitals within a few miles of each other in this day of good roads and quick transportation. No one will question the right of building or assisting such hospitals—provided they are needed. But, from the standpoint of reasonably good surgery, unless those who practice therein can meet a fair and reasonable standard in their surgical work, then I claim that such institutions become a public menace rather than an instrument of good. Any endowment or charitable organization can easily refuse the use of the operating rooms to those not capable of doing surgery by simply withdrawing their support. And who is to coöperate with such agencies in enforcing a reasonable standard? Here is where the solution lies—in the hospital staff itself. It is up to the doctors to determine in a courageous way what shall go on in the operating rooms of the institution of which they make up the professional staff. We all know that the average staff meeting is little more than a session where we exchange felicitations on our golf scores, pat each other on the back because our hospital had two hundred and fifty operations last month, quickly read over a list of fatalities, admissions and so on, instead of seriously considering and boldly discussing the mortality rates therein. Let's get at the real thing and do whatever is necessary to improve the fundamental reason of a hospital's existence, namely, the best possible treatment for those who are sick and entrusting themselves to our care.

So then, the eighth standard I would submit is this: A medical school diploma, a State Board Certificate or even an Interne Certificate is not sufficient evidence of a man's qualification for surgery. He should have a period of training in an approved institution under the direction and guidance of skilled and competent men, or should show a designated number of operations performed during the course of his own practice with a mortality rate not exceeding a reasonable per cent, before he should be permitted to do surgery.

In conclusion, gentlemen, let me say that there are ominous clouds on the horizon, a storm in the shape of state medicine is liable to break. Unless we take hold of this problem and work it out for ourselves, it is going to be done for us by the laymen, or what is worse, a commission of cheap politicians or lawyers.

Chairman McKnight: Gentlemen, the next paper on the program is, "The Importance of the Recognition of the Patency of the Duodenum before all Operations on the Stomach," by Dr. A. G. Brenizer, of Charlotte.

THE IMPORTANCE OF THE RECOGNITION OF THE PATENCY OF THE DUODENUM IN ALL OPERATIONS ON THE STOMACH

By Addison G. Brenizer, M.D., Charlotte, N. C.

One of the most pertinent questions to prove and answer before undertaking any operation on the stomach is: "Is the tract from the pyloric canal through the duodeno-jejunal junction into the small intestinal coils open and unobstructed"? The failure to recognize an obstruction of the duodenum may prevent the success of an otherwise properly indicated and executed operation, whether that operation be simple excision, pyloroplasty, gastro-enterostomy, or the resections of the type of Billroth Nos. I and II.

The main causes of obstructions of the duodenum are: (a) gall bladder; (b) periduodenal membranes and bands; (c) diverticula of the duodenum and jejunum and ulceration; (d) stricture of the duodenum (syphilis); and, (e) compression of the duodenum by the superior mesenteric or median colic arteries.

The process of evacuation of the normal stomach is described by Cole as follows:

"The chyme in the stomach is moved along from one chamber to another by a progressive peristalsis, there being some intermingling of the chyme of the corpus with that of the antrum. The fluid chyme is squirted through the pyloric valve into the reservoir cap and separated from the rest of the chyme of the stomach. The fluid chyme is taken out of the top or distal end of the cap by a broad peristaltic wave which carries it through the duodenum and probably continues throughout the small intestine. The frequency and activity of this broad peristaltic wave is the fundamental phenomenon which governs gastric evacuation. Gastric tone only presses the chyme against the under surface of the cap. Progressive peristalsis, modified by systole and diastole, no matter how strong, only squirts the chyme through the lumen of the valve into the cap. The pyloric canal closes with a definite sphincteric action, but it is closed for such a very short period of the gastric cycle that it does not normally prevent gastric evacuation, and, if anything, it possibly accentuates it by squirting a small amount of chyme through into the cap when it contracts. The pyloric valve tends to retain the solid food in the antrum and to allow the more fluid content to be squirted through into the cap. But if all these are functioning normally and actively, unless there is a broad peristaltic wave to propel the chyme from the top of the cap and carry it through the duodenum in finger-like masses, functional gastric retention ensues. Therefore we must reiterate that the duodenum is the fundamental phenomenon which controls gastric evacuation."

It becomes immediately evident that if the broad peristaltic wave in the duodenum is to take place in its progressive fashion from cap through the duodeno-jejunal junction into the small intestine, this route must be ever patent and obstruction of the duodenum will not only be followed by stasis, but the whole gastric motor mechanism may be disturbed. This condition is actually observed in cases of duodenal obstruction: the pyloric canal may stand wide open and antiperistaltic

waves be seen to traverse the stomach as vomiting takes place, and duodeno-jejunostomy may completely relieve this condition and restore gastric motor function. The patency of the duodenum may be restored by the removal or drainage of an obstructing (a) gall bladder or common bile duct, the release of (b) periduodenal membranes or bands, (c) a diverticulum, (d) a syphilitic stricture, or (e) compression of the duodenum by the superior mesenteric or median colic arteries.

The compression of the superior mesenteric and median colic arteries may be relieved temporarily by a Trendelenburg position with patient turned over on the abdomen, either before or after operations on the stomach, when a high obstruction is made evident by persistent and voluminous vomiting. This position offers a release of the pull downward and compression upon the duodenum by the superior mesenteric or median colic arteries. Duodenal obstruction, "vicious circle" and "acute dilatation of the stomach" are likely one and the same thing and have as a primary cause the same mechanism as duodenal obstruction.

Unfortunately the condition of duodenal obstruction may not be detected before operations on the stomach due to the very position on the table in which fluoroscopic and plate studies are usually made, that is in the position on the abdomen, which position gives relief to the compression of the arterial pedicles upon the duodenum. Complete X-ray studies should follow the patient not only in the prone position, belly down, but in the oblique and certainly in his usual erect position.

Even after such a complete study in the various positions, a duodenal obstruction may be missed, on account of coexisting pyloric obstruction above the point of duodenal obstruction, preventing a sufficient quantity of barium being squirted into the duodenum to dilate it sufficiently. Only after the relief of the pyloric obstruction may the dilated duodenum and the obstruction farther down the tube, near the duodeno-jejunal junction, be brought to light.

After closure of a perforated duodenal ulcer, a form of duodenoplasty in our hands, for we cauterize the area of the base of the ulcer or infold it widely in the transverse direction, the outline of the pyloric cap is done away with, and, except for pyloric or duodenal obstruction, we can make out little or nothing of the details of the first position of the duodenum. Where the duodenal ulcer has recurred and even perforated and where we have been forced to do a gastro-enterostomy at the time of closure of the perforation, we have thought that duodeno-jejunostomy would have been the operation of choice, along with the resection of the ulcer, instead of a pyloroplasty or a gastro-enterostomy, had we been fully aware of a duodenal obstruction.

Normally there are occasional reverse peristaltic waves seen to traverse the duodenum and a small amount of regurgitation of duodenal contents through the pyloric canal back into the stomach. After gastroenterostomy, the musculature of the pyloric canal becomes atrophic and relaxed; after pyloroplasty, where the circular muscles of the canal and pyloric valve are cut across, the canal and pyloric valve offer little resistance to the back flow from the duodenum. Duodenoplasty which does not cut across the circular muscles of the pyloric canal does not give

the relief of the pyloroplasty which does sever this muscle of the canal as well as the valve.

The atrophic condition of the pyloric canal and diminished contraction of the circular musculature after gastro-enterostomy is due probably, first, to the fact that since most of the chyme leaves through the new opening, little is left to bear down on the pyloric canal or to be held back by it; and, second, to the fact that the chyme is poured into the jejunum about 35 cm. below the pyloric canal and below the duodeno-jejunal junction; the presence of chyme in the jejunum tends to hold back the progress of the material coming down from above, reverses the contraction waves in the upper jejunum and duodenum and increases the amount of alkaline regurgitation into the stomach. Advantages of gastro-enterostomy and pyloroplasty are, therefore, ready emptying of the stomach, the atrophic pyloric canal in the former, the severed canal in the latter; the alkaline regurgitation back through the pyloric canal in both. This regurgitation takes place from a point below the duodeno-jejunal junction and, therefore, the duodenum must be open all the way from pyloric valve and canal beyond the ligament of Treitz to establish proper conditions not only for downward rush of chyme, but upward alkaline regurgitation of alkaline duodenal contents. Following both gastro-enterostomy and pyloroplasty, most authors agree that the free and total acids are reduced from a quarter to a half in about four-fifths of the cases and relief of pain and distress is immediate in about as many cases.

We hear from time to time the offering of a method of pyloric occlusion or exclusion for duodenal ulcer, even without resection of the ulcer, of the Devine or Bancroft type of operation. If this were done, the essential factor, beyond the resection of the ulcer, in both gastro-enterostomy and pyloroplasty, that of alkaline regurgitation through the atrophic or severed pyloric canal would be done away with. There is no advantage of such operations over partial gastrectomies, indicated in large deforming, benign ulcers along the lesser curvature, which do not heal under medical treatment and in ulcers of the anterior and posterior walls of the stomach and along the greater curvature which may be cancerous. V-shaped resections along the lesser curvature and sleeve resections, on account of their deforming effect and disturbance of gastric motility, are entirely out of order and when resections are necessary, they should be extended into partial gastrectomy.

The benefit of gastrectomy lies in the removal of the unhealed ulcer alone and not in the resection of an acid bearing area, for there are no acid secreting cells in the pylorus and antrum, but only in the corpus and fundus of the stomach. These resection operations, as well as the reconstructive operations of gastro-enterostomy and pyloroplasty are doomed to failure, if the patency of the duodenum is not assured.

In conformity with the anatomy and physiology of the clinical, living stomach, it might seem better, at first glance, in considering a gastro-enterostomy, to place the jejunal loop as near the pyloric canal as possible or at the most dependent part of the stomach along the greater curvature and bend the jejunal loop so that the contraction waves of the stomach and jejunum would traverse in the same direction. As a matter

of accomplishment, it seems to make little difference whether the jejunal loop is placed to run "iso-peristaltically" or "contra-peristaltically" with the stomach, provided it does not angulate at the ligament of Treitz with the varying positions of the stomach particularly in the gastro-enteroptotic abdomen, or cause duodenal obstruction. As far as the stomach is concerned, it is more important to place the anastomosis at a point continuing the direction of the lesser curvature from cardia to new opening, for it is along the lesser curvature, the primitive gastric tube, that the contraction waves of the stomach are directed and initiated, followed by waves traveling fast along the greater curvature from 4 to 8 o'clock, to arrive and meet the deep contraction of the muscularis mucosa, the sulcus angularis, at the site on the lesser curvature of incisura angularis, where the verticle and oblique columns of the stomach meet. The best place for an anastomosis of jejunum with stomach is between the antrum and corpus, near the greater curvature and opposite the incisura angularis. This point is usually the most dependent portion of the stomach and on a line continuing the direction of the lesser curvature, and can be determined by observing the stomach in motion, allowing for both the recumbent and standing positions.

About half a century has elapsed since the foundation of gastric operations and yet hardly a single revolutionary method, except duodeno-jejunostomy for draining the duodenum and Strauss' longitudinal resection of the lesser curvature, in lieu of the deforming V-shaped and sleeve resections, have been developed. Technical modifications and improvements of operations have been added and sufficient X-ray apparatus developed to picture the living, moving stomach, if we can only interpret what we see, but the principles of enlarging the pyloric orifice, as laid down by Heineke-Miculicz, the gastro-jejunal anastomosis of Woelfer and the gastric resections of Billroth remain the basal procedures.

It is likely that none of these operations have primarily and finally more than a mechanical effect, beyond the removal of the lesion and that no enduring physiological basis has been established, beyond the drainage of the higher into the lower portion of the gastro-intestinal tract. Reports are being made of patients who have had all of these operations, even subtotal gastrectomies and low acidity, who are returning with new gastric and gastro-jejunal ulcers.

Some of these recurrences are likely due to an undetermined duodenal stasis. Sloan proved the presence of periduodenal adhesions by operation in 362 cases and found a coexisting duodenal or pyloric ulcer fifty-two times. From these observations, he concludes that partial duodenal obstruction at the duodeno-jejunal angle is sometimes the cause of duodenal ulcer or that it creates conditions favorable for ulcer formation. He obtained several cures of the ulcer by simple removal of the obstruction without gastro-enterostomy. Kellogg and Quain observed five cases of duodenal ulcer with duodenal stasis. In six cases the ulcer was active; in two of Kellogg's and one of Quain's, stenosing in Wilkie's. Wilkie reported a perforated duodenal ulcer, along with duodenal obstruction. In a case of Deaver there were four perforations, with three operations of suturing and recovery, but death after the fourth perforation. The autopsy showed an unsuspected obstruction of

the duodenum above the mesenteric artery. Wilkie again reported three cases, Higgins five cases of duodenal ulcer as complications in duodenal stasis, and Barling and Zoepffel five and two cases respectively of gastric ulcer accompanying duodenal obstruction. Lane restated his theory that duodenal stasis may produce either ulcer of the duodenum or stomach. Berg, Melaney and Jobling, in their experimental studies after the production of a lasting duodenal obstruction with dilatation above and confirmed by fluoroscopic examination, noted, as well, an enormous increase in bacterial flora, mostly in the bacilli of the colon group.

Gastric retention and dilatation of varying degree is not uncommon, along with duodenal stasis, and has been noted by most writers on the subject. In a case of Stavely's and Wilkie's the gaping pylorus admitted several fingers. Moynihan has pointed out that duodenal obstruction is a cause of the so-called "vicious circle" and Wilkie also stresses this point, as well as the point that recurrent symptoms after gastro-enterostomy are due to unrecognized duodenal obstruction at the time of operation. Zoepffel likewise attributes some bad results after Billroth No. I to the fact that stenosis of the third portion of the duodenum had been unrecognized.

It is, therefore, necessary always to verify the condition of the duodenum, with the patient in various positions, before doing any operation on the stomach and if trouble develops after operation, be assured again of the patency of the duodenum.

BIBLIOGRAPHY

1. Cole, Lewis Gregory: The Living Stomach and Its Motor Phenomenon, Acta Radiologica, Vol. ix, facs 6, No. 52, 1928.

2. Sloan, E. P.: Partial Obstruction at Duodeno-jejunal Junction as a Cause of Ulcer of Duodenum, J. A. M. A., Vol. lxxx, pp. 977-978, 1923.

3. Kellogg, W. A.: Chronic Duodenal Obstruction with Duodeno-jejunostomy as a Method of Treatment, Annals of Surgery, Vol. lxxii, p. 578, 1921.

4. Brenizer, A. G.: Deformities and Obstruction of the Duodenum, American Journal of Surgery, Vol. ix, pp. 430-440, September, 1930.

5. Quain, E. P.: The Duodenum. C. V. Mosby Co., 1928.

6. Wilkie, D. P. D.: Chronic Duodenal Ileus. Brit. Med. Jour., Lond., Vol. ii, p. 893, 1921; American Journal of Medical Sciences, Philadelphia, Vol. clxiii, pp. 643-649, 1927.

7. Higgins, C. C.: Chronic Duodenal Stasis. Arch. of Surg., Vol. xiii, p. 1-42, Chicago, 1926.

8. Barling, S. G.: Chronic Duodenal Ileus. Brit. Jour. Surg., Vol. x, pp. 1235-41, 1923.

9. Berg, B. N., Melaney, F. L. and Jobling, J. W.: Experimental Chronic Duodenal Obstruction: Bacteriology. Arch. Surg., Vol. xiv, pp. 762-771, Chicago, 1927.

CHAIRMAN MCKNIGHT: Gentlemen, the next two papers, one by Dr. Deryl Hart of Durham on, "Self-Mutilation," and one by Dr. Julian A. Moore, of Asheville, on "Studies in Electro-Surgery," I shall read by title. Dr. Hart and Dr. Moore are members of the American Association of Thoracic Surgeons and have been compelled to attend that meeing at Ann Arbor, Michigan.

ELECTROSURGERY AND ITS CLINICAL APPLICATION

By Julian A. Moore, M.D., M.M.S., F.A.C.S.

(Read by title)

The medical profession has been slow to accept the value of electrotherapy and has considered much of it as semi-quackery. This is due both to the exorbitant claims of enthusiasts, and also to ignorance. During the developmental stage most electrical appliances were unsatisfactory, and they would not do the things the manufacturers claimed they would do. To some extent this is still true as many worthless machines are on the market. However, in recent years various appliances have been perfected and the treatment of many diseases by electrical means has been established on a sound scientific basis.

It is not my purpose to discuss the many electro-therapeutic agents but to confine my remarks to the applications of high frequency currents to surgery. Of this method, Howard A. Kelly has recently said: "Electrosurgery, sometimes vaguely called diathermy—or more specifically surgical diathermy, is still a comparatively new and astonishing development within the broad field of general surgery, and is destined to effect a profound readjustment of our surgical technic. While the surgical operation is identical as to its objective, the method, the modus operandi, is widely different, being a skillful adaptation of our recent discoveries in generating and manipulating high frequency electric currents, whereby they are made to furnish a rapid flawless technic in the excision and destruction of new growths and in the sterilization of tissues."

A high frequency current is an "electrical current having such a high rate of alternations or oscillations that living tissues do not attempt to contract under each impulse. They differ only from low frequency currents in the fact that their passage through living tissues is painless, non traumatic (under proper density of current) and beneficial over a wide range of indications, whereas the passage of a like volume of low frequency current would be extremely painful, would traumatize muscles and nerves and even fracture bones and would be dangerous and deadly."

When a high frequency current is passed through the body from one large electrode to another large electrode the temperature of the tissues is raised within physiological limits. This is medical diathermy and is a very efficient means of applying internal heat, and is beneficial in a variety of conditions.

If a high frequency current is passed through the body from a large to a very small electrode the temperature in the tissues just beneath the small electrode is raised beyond the physiological limit and destruction of tissues at that point takes place.

The currents supplied by the best of modern electrosurgical units are of such high frequency, i.e., the direction of current flow being reversed at the rate of upwards of a million times each second, that the electrical shocks, chemical action, molecular changes and lethal effects associated with ordinary commercial currents are entirely absent.

With such a machine as the Bovie Electrosurgical Unit one can cut, dessicate, or coagulate tissues. These different effects depend to some

extent upon the voltage and amperage of the current, but mostly upon the character of the wave of the current.

An undamped current is one which alternates in the direction of flow at a substantially uniform rate and amplitude and such a current will cut, but has little dehydrating effect with consequent hemostatic properties on the severed edges of the tissues. Obviously such a current would offer no advantages over the scalpel.

A damped current is one which varies periodically in rate as well as amplitude. A highly damped current will dessicate or coagulate tissue but has absolutely no cutting quality.

A moderately damped current will cut and dehydrate at the same time so that tissues may be cut without loss of blood. The current may be so adjusted that different degrees of dehydration may be obtained. In cutting tissues with the electric current the small blood vessels and lymphatics are sealed, while larger blood vessels will bleed. The larger vessels can be caught with a hemostat and instead of tying the vessel, the clamp can be touched with the coagulating current which immediately coagulates and seals the ends of the vessels.

The advantages offered by electrosurgery are:

(a) Operations can be done more easily, more rapidly and with less loss of blood;

(b) There is no surgical shock from the current itself, in fact the heat generated by the current tends to lessen shock;

(c) There is less postoperative pain as the nerve endings are sealed over and not left exposed;

(d) The tissues are sterilized;

(e) Fewer ligatures are used;

(f) There is less handling and trauma of the tissues;

(g) In attacking malignant diseases, the infected tumor area is sterilized and complete destruction of visible and palpable malignant disease is accomplished;

(h) The dangers of implantation and metastasis at the time of operation are eliminated in that blood vessels and lymphatics are sealed over immediately and any tumor cells within the path of the incision are instantly destroyed;

(i) And, lastly, tumors otherwise inoperable may be attacked with comparative safety by this method;

The disadvantages are:

(a) Healthy tissue is destroyed as easily as diseased tissue;

(b) There is some danger of secondary hemorrhage, which must be obviated by tying the large vessels;

(c) Healing of skin wounds made by the current is somewhat delayed and the scar is somewhat broader;

(d) Lastly, there is danger of explosion with some anaesthic mixtures.

With the advent of reliable machines, the field of usefulness of electrosurgery has been enlarged considerably. Many of the leading surgeons have adopted the method and have found many new uses for it that were unheralded ten years ago.

Cushing was the first to make practical application of this method in

the field of brain surgery; others doing brain surgery have followed his example. It is the greatest advance and technic made in brain surgery in the past decade. With electrosurgery the operator is enabled to remove brain tumors that he would not have dared to attempt to remove before, because he could not control hemorrhage.

In thoracic surgery, it should have a great field of usefulness. I know from a limited experience that it will lessen the amount of blood lost and will greatly reduce the operating time in doing a thoracoplasty. Amputation of the breast can be made a bloodless operation by electrosurgery and operating time greatly reduced. Matson has discarded the cautery method of pneumolysis in favor of electrosurgery. In his hands it has controlled hemorrhage and thus extended the usefulness of the operation.

Many of you are familiar with the electrosurgical method of removing tonsils. I am not prepared to discuss the advantages or disadvantages of the method for this particular operation. Probably in a limited number of cases it offers an advantage over surgical removal. However, the fact remains that the method has been adopted by a considerable number of reputable as well as disreputable men.

In genito-urinary surgery, the method has long been used to treat papillomata and malignant tumors of the bladder. It should be the ideal method of excising a phagodenic chancroid, of doing a dorsal slit in phimosis complicated by infection. It has displaced the Young Punch operation. The Davis method of removing prostatic obstructions and even of removing the prostrate gland by electrosurgery through the cystoscope resectoscope will undoubtedly revolutionize prostatic surgery.

In general surgery its field of usefulness is rapidly growing. It can be used instead of the actual cautery. It is the ideal method of excising a carbuncle, to remove superficial blemishes, warts, moles, papillomata and condylomata. It has been used to advantage in surgery of the thyroid gland, where it saves time and loss of blood.

Probably its greatest field of usefulness lies in the treatment of cancer, particularly surface cancer. I do not mean to say it should displace other methods but it is a most valuable adjunct to scalpel and to radiation therapy. Dr. William L. Clark states that it is the most satisfactory method yet designed for the treatment of localized neoplastic and allied lesions of the skin and mucous membranes, and that electrosurgery will frequently reclaim cancer cases that would have been quite hopeless were these methods not available.

There are numerous other ways in which electrosurgery can be used to advantage, but I have reviewed the more important ones. As time goes on this method will be more widely used by surgeons everywhere. It will not displace the scalpel and ligatures, but it has brought to the surgeon a valuable addition to his armamentarium and will enable him to establish a form of surgical therapy which cannot be accomplished with the scalpel alone.

In conclusion I wish to add a word of caution. Electrosurgery is not a method that a surgeon can learn in a day. To use such a dangerous instrument intelligently requires some fundamental knowledge of electricity, and of the effects of high frequency currents on living tis-

sues, and of the pioneer work of such men as Clark and Wyeth, who have done so much to establish the principles of this form of surgery. It also requires the development of a new technic, which takes considerable patience and practice, notwithstanding the claims made by the manufacturers of these appliances.

The next paper on the program is, "An Improved Splint for Treating Fracture of the Lower Extremity," by Dr. C. I. Allen, of Wadesboro.

AN IMPROVED SPLINT FOR TREATING FRACTURES OF THE LOWER EXTREMITY—SHOWING REDUCTION AND SKELETAL DISTRACTION ATTACHMENTS

By Charles I. Allen, M.D., Wadesboro, N. C.

This splint has been developed in an attempt to overcome some of the difficulties which I have experienced in using the ordinary Thomas type leg splint. Having had the splint in actual service for more than a year, I find that it eliminates these difficulties, chief of which are: the tendency for the patient to turn the splint over; the catching of the traction-weight on the foot of the bed; the tendency of the splint to ride toward the foot of the bed, and the pinching off of traction by having the splint ride toward the foot and press against traction pulley; the sagging of supporting straps (and the bars of some splints will sag under the weight of the patient's leg) and the difficulty of keeping a supporting strap above the angle on outside bar near the ring. Besides eliminating these difficulties, it provides definite improvements which are apparent from the illustrations and descriptions given.

It is a very comfortable splint for the patient and after it is applied it is not necessary to adjust it every few days. It does not take long to assemble and apply the splint. I have a chest containing equipment for five splints and all other needed accessories. This is rolled to the patient's bedside and I can assemble and apply one of these splints as quickly as any ordinary suspension splint.

The reduction apparatus has proved quite serviceable, as it provides means for immediately overcoming shortening while the leg is in the splint. My experience has been that if this is done and sufficient weight traction is applied to maintain this length, if the leg is kept in good alignment, and eversion and inversion guarded against, one can expect good results. During the past year I have treated five fractures of the shaft of the femur with this equipment, not one of which measures as much as one-half inch shortening.

The skeletal distraction apparatus shown has been used by me in an experimental capacity only. It provides a simple equipment for the use of skeletal distraction in those conditions where skeletal distraction has proved of service. I feel that further experience will show that it can be used successfully in many cases where bone-plates are now being used. In using these nails on the upper part of the femur one should guard against injuring the femoral artery.

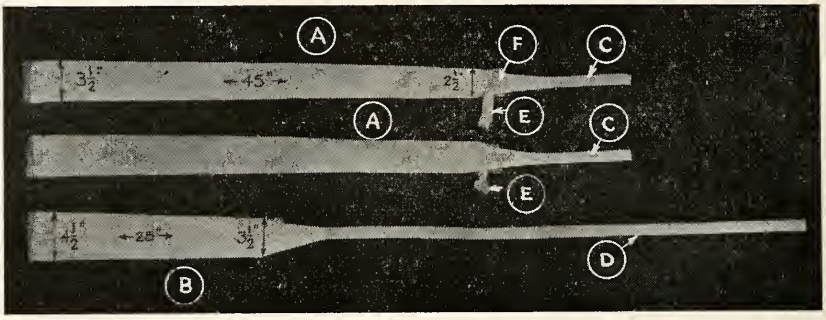


FIGURE 1. *Method of Preparing Moleskin Adhesive Traction Straps*—Note webbing CC sewed to end of straps; small roll of adhesive EE which is used to make spiral turns sewed to strap at F. Strap B is used when traction is made above knee. Note long strap of webbing D which is sewed to strap; having this strap long and spreader fastened to this strap below patient's foot permits the foot to come up between the straps when knee-working attachment is used. See FIG. 16.

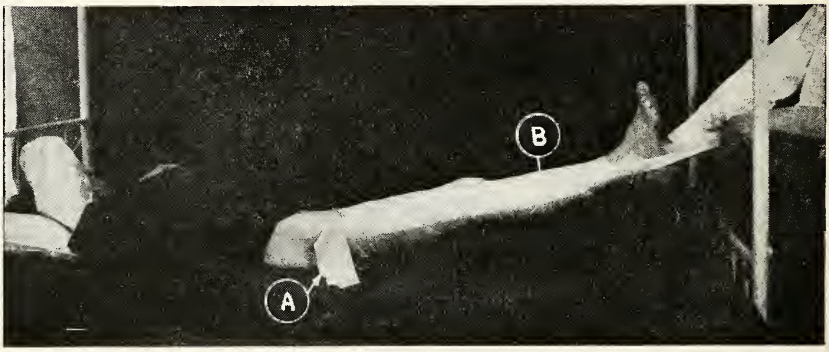


FIGURE 2. *Method of Applying Traction Straps*—Note that a layer of gauze bandage has been applied before spiral turns B are made. This greatly lessens the danger of skin sores developing. Note loose end of traction strap A; this will be turned down and caught with the next layer of gauze bandage.

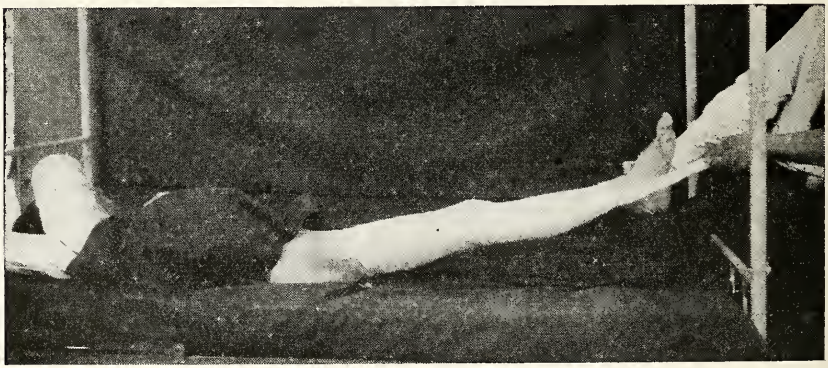


FIGURE 3. Finished layer of gauze bandage has been applied and the loose ends of traction straps shown in FIG. 2 have been turned down and the raw surface caught by this bandage; by doing this and by having adhesive which makes the spiral turns sewed to the straps as shown in FIG. 1 the danger of traction straps slipping is greatly lessened.

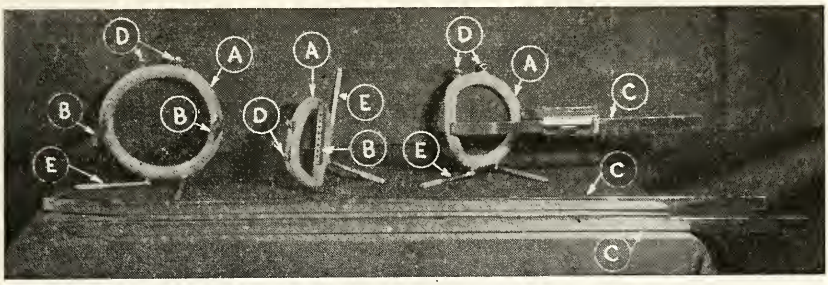


FIGURE 4. *Shows Rings and Bars Which Make Up the Essential Parts of Splint*—Note circular-type covered rings, indented on one side A A A. Note hinged, rectangular projections B B B; on these projections are slipped hollow, rectangular bars of dura-aluminum C C C. These bars being of a rectangular construction, give great rigidity and strength to the splint, and they form a track which carries all the other attachments, which are standardized for this size rectangular bar. By being made of dura-aluminum these bars are light and also permit lateral X-rays to be made without removing leg from splint. The proper size ring is selected by measuring thigh or by trying ring on uninjured leg. (I have rings of 5 different sizes. Then lateral bars of suitable length are fastened to the ring; onto these bars are slipped a suitable number of webbing cuffs; the ends of bars are adjusted to proper width and held by channel end piece and two bolts. The ring can be used for right or left leg by turning it over. Note rods E E; these rods screw into projections D D. They rest on mattress and prevent patient from turning splint over. They also greatly lessen the tendency of the splint to slip toward foot of bed. It will be noted that the inner bar can be turned out of the way when bed-pan is used. (See FIG. 14).

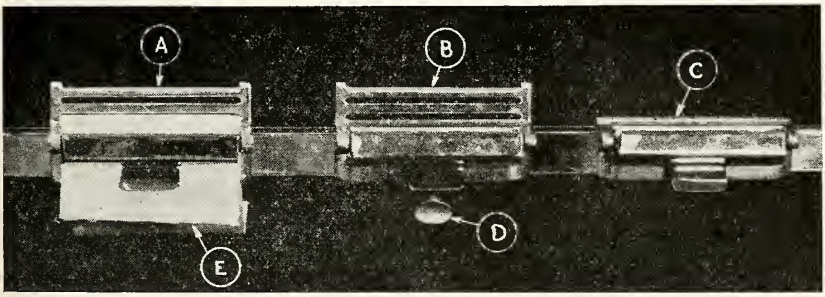


FIGURE 5. *Shows Webbing Cuffs On a Piece of Lateral Bar*—These cuffs carry four inch supporting webbing—E. Note set screw D, by means of which cuffs can be fixed at any point on bar. Note slots on top of cuffs A and B. By means of these slots and webbing E lateral pressure can be made at any point desired on leg, or the leg can be securely strapped in splint when patient is being transported. Note that cuff C has no slots; it is used on knee-working attachment bar—(See FIG. 16)—and by having no slots on top permits this bar to make close contact with upper bar.

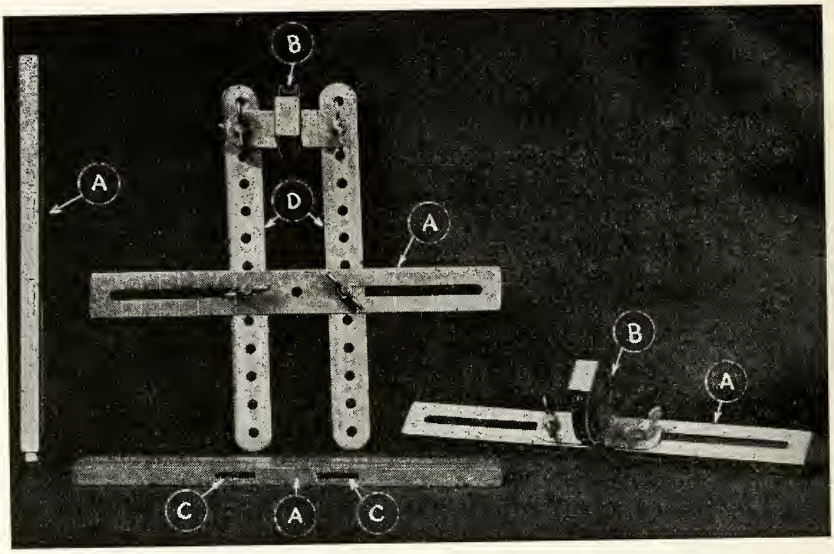


FIGURE 6. *Shows Channel End Piece A A A*—Which with two bolts holds ends of lateral bars and permits them to be adjusted to any width. Note pulley B fastened to end piece. Note slots C C in end piece, and attachment pieces D which go into slots C C and are fastened by thumb bolts. This makes an arrangement so that pulley B can be raised or lowered if desired.

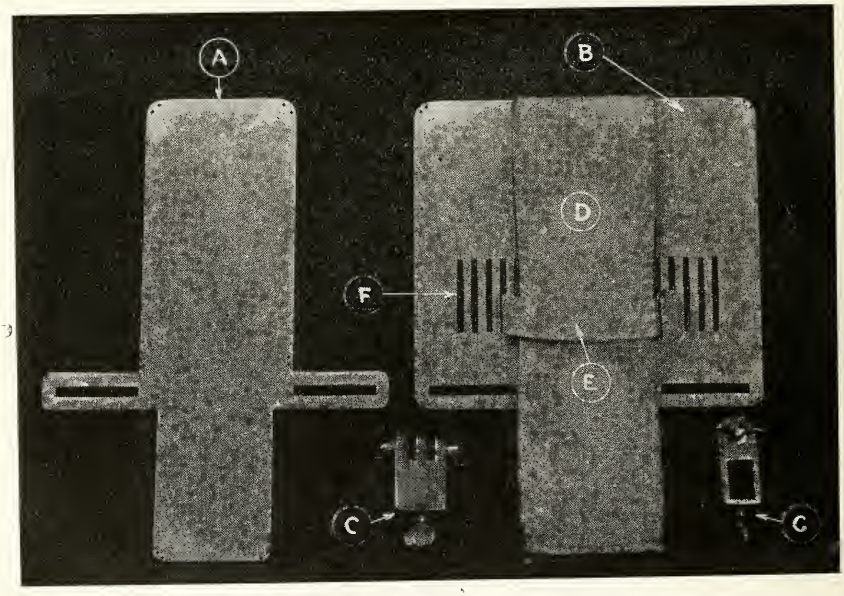


FIGURE 7. *Shows Foot Pieces A and B*—Narrow foot piece A is used when knee-working attachment bars are used—(See FIG. 16) and permits foot to come up between other bars. Note felt D, which is tacked to foot-piece, and strap E which goes around foot and prevents eversion and inversion of foot. These foot-pieces also keep covers off end of toes. Note cuffs C C which ride lateral bars and carry the foot pieces.

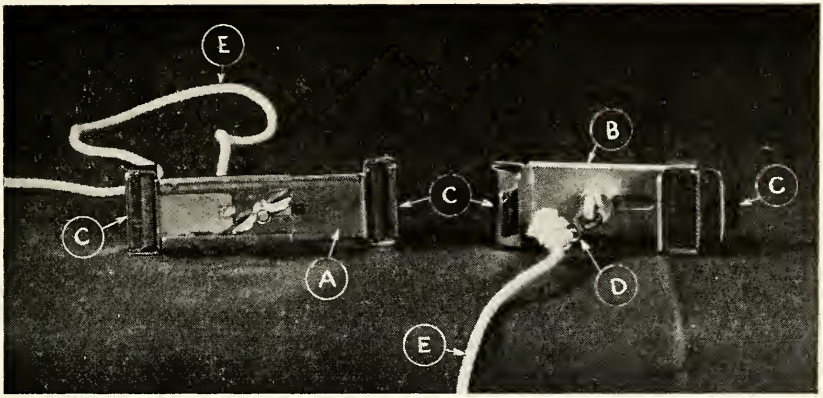


FIGURE 8. *Shows Front and Rear Views of Adjustable Adhesive Spreader*—Which can be adjusted to any width foot, holds traction straps, prevents pressure on ankle-bone, and provides hook to which traction rope is fastened.

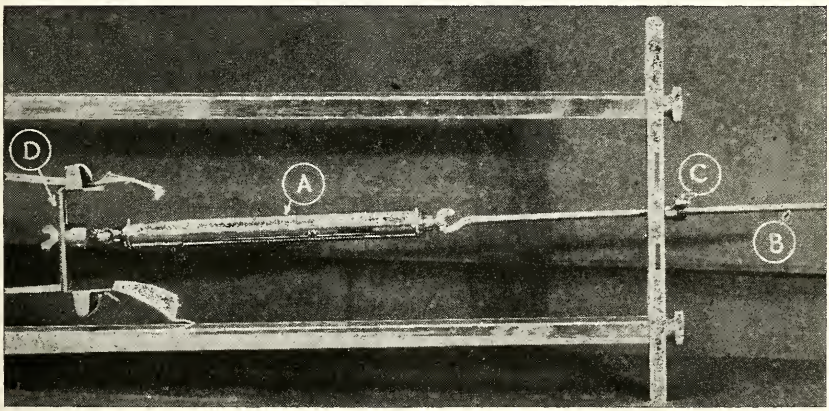


FIGURE 9. *Shows Method of Using Spring Traction*—Note adhesive spreader D, spring scale A, rod B, thumb-screw C. I do not like spring-traction but it is useful when a patient has to be transported. Weight-traction gives a constant tractive weight, regardless of the movements of the leg in the splint, and by having traction carried over a pulley on the end of splint, as shown in FIG. 12, this same weight assists in raising the thigh end of splint when patient uses bed-pan. Note how lateral bars are held by end-piece and two bolts. They can be adjusted to any width by loosening these bolts. It is these bolts which are loosened to receive and hold the reduction apparatus shown in FIG. 10.

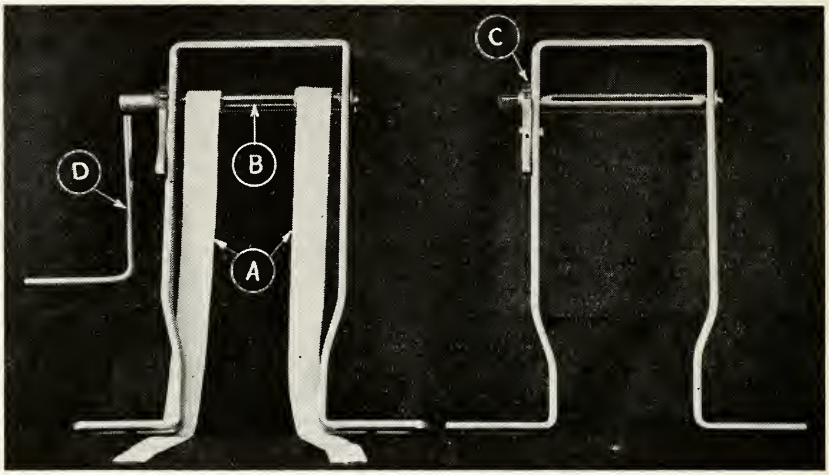


FIGURE 10. *Shows Reduction Apparatus*—Which is fastened to end of splint by loosening the two end bolts. Note webbing straps A, which are looped around foot as shown in FIG. 12. Note how other end of webbing straps are caught in slot B. Note ratchet C and crank D. This apparatus permits any amount of traction to be applied to leg to overcome shortening while leg is in the splint, and it holds the leg in this position until the continuous traction-weight is applied, when it is removed. (See FIG. 13).

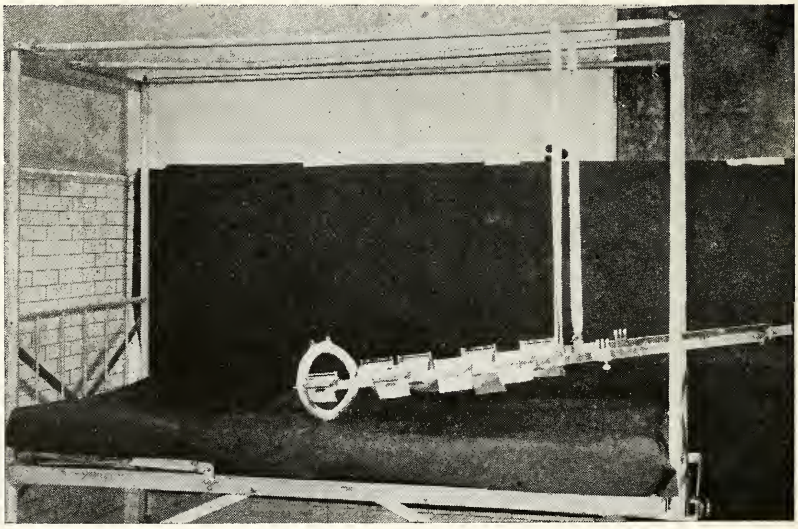


FIGURE 11. *Shows Splint Assembled and Ready to Slip on Leg*—Note the two rods attached to ring and resting on mattress; these prevent patient from turning splint over —(See FIG. 4).

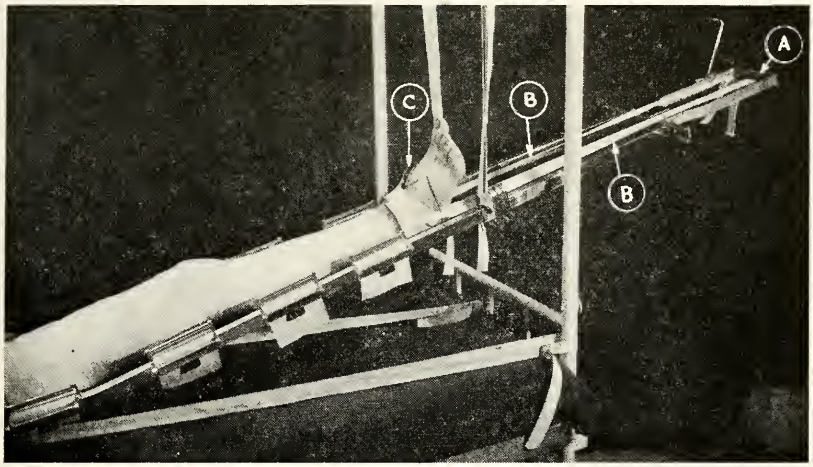


FIGURE 12. *Shows Leg in Splint*—And reduction apparatus A shown in FIG. 10 has been fastened to end of splint. Note that straps B B have been looped around ankle after a piece of felt C has been applied to relieve pressure. Any amount of traction can thus be applied with patient's leg in splint, to immediately overcome shortening, and this position is held by the reduction apparatus until the continuous tractive weight is applied as shown in FIG. 13.

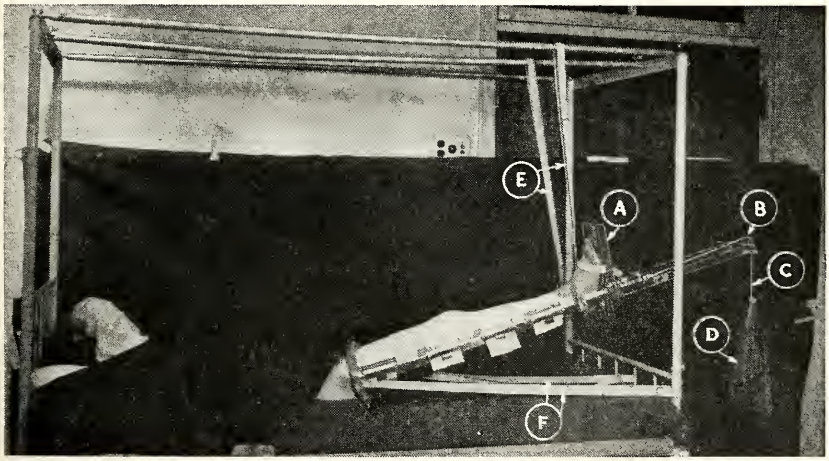


FIGURE 13. The tractive weight D, which is to be used for the continuous traction has been applied and reduction apparatus shown in FIG. 12 has been removed. Note foot-piece A—traction-pulley B on end of splint—and traction-rope C.

Note suspension-straps E and that splint is suspended at only one point. By adjusting straps E to the proper point on the lateral bars a balanced condition can be determined between the weight of the leg and traction-weight D, so that without strain or difficulty patient can raise buttocks for use of bed-pan, as shown in FIG. 15.

Note fixation-straps F. After splint is applied and adjusted to the leg, these straps are tied to the ring and to the foot of the bed. This fixes the ring of the splint so that when patient pulls himself up in bed the splint cannot follow, and in this way patient can prevent any pressure on perineum by ring of splint. The patient is told to pull himself up in bed if he feels any pressure. This splint should be used solely as a carrying splint for the leg and no continuous pressure should be made against the perineum. No patient can stand the amount of continuous traction necessary to treat a fracture of the shaft of the femur by having the pressure made on the perineum.

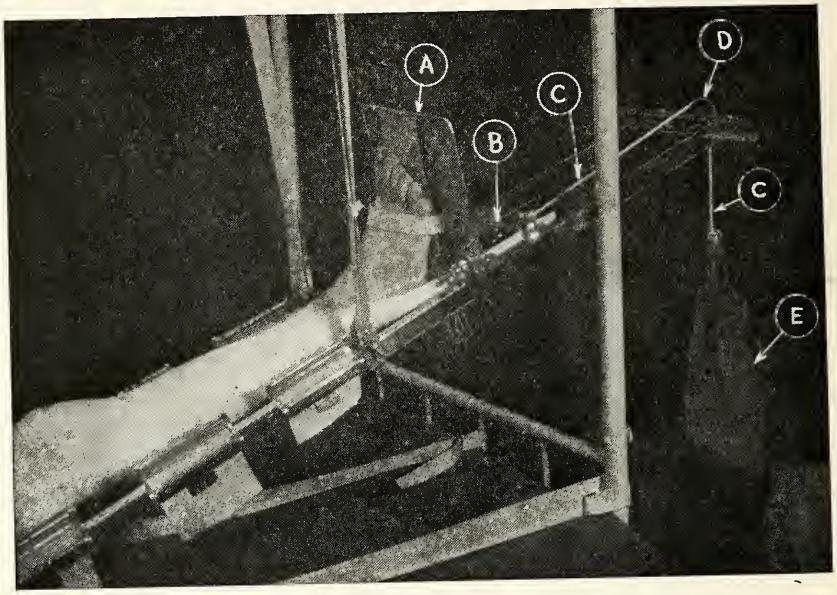


FIGURE 14. *Shows Foot Piece A—Adhesive Spreader B—Traction-Rope C—Pulley D—Weight E*—Note that end of splint sticks out over foot of bed. This makes traction-weight E swing clear of the bed and there is no danger of it catching and hanging on the edge of bed, as so often happens. Note that having traction-pulley D on end of splint instead of having a traction-pulley fastened to end of bed, prevents the splint from riding down and pinching off traction weight at the pulley, as so often happens when that arrangement is used. The method illustrated insures continuous traction.

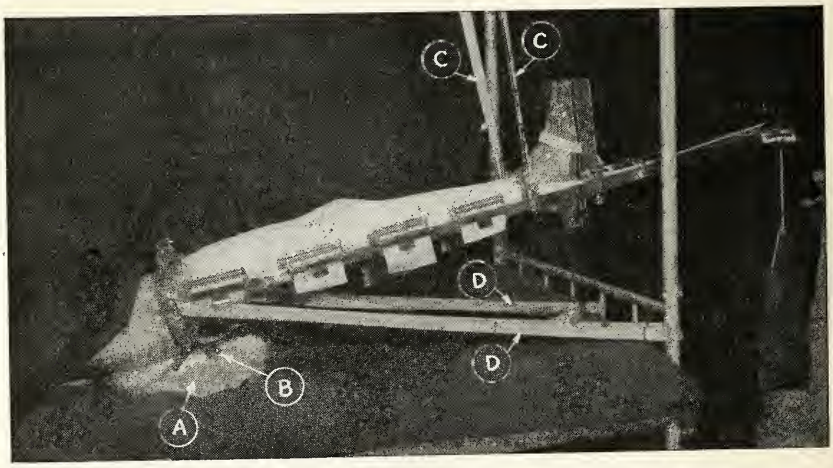


FIGURE 15. Note bed-pan A and how inner rod B has been turned down out of way. Note how traction weight over end of splint with suspension straps C C acting as a fulcrum, lifts thigh end of splint when bed-pan is used.

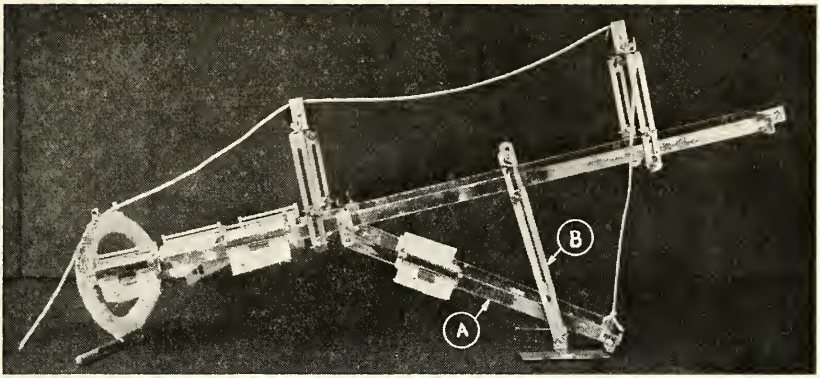


FIGURE 16. *Showing Splint Assembled With Knee-Working Attachment A*—Note bed-rest support B, which can also be adjusted to a point on the bars to act as a fulcrum between weight of leg and traction-weight over end of splint. I do not like any form of support which rests on the mattress, for as it sags toward the center the tendency is to lean the splint over. Suspending the splint from overhead frame is much better. (See FIG. 17).

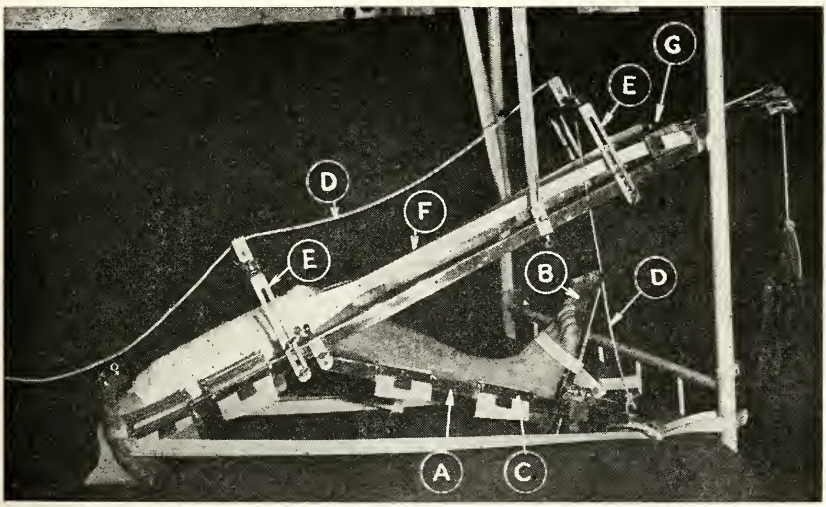


FIGURE 17. *Shows Leg in Splint With Knee-Working Attachment*—Note narrow foot-piece B, shown in FIG. 7. Note webbing-cuff C without slots on top. Note adhesive straps F with long piece of webbing, and spreader below foot; this permits patient's foot to come up between these straps when rope D is pulled on. Note attachment E E with pulley on top. By using three or four of these attachments on a splint they make a good cradle for keeping covers off leg in treating wounds.

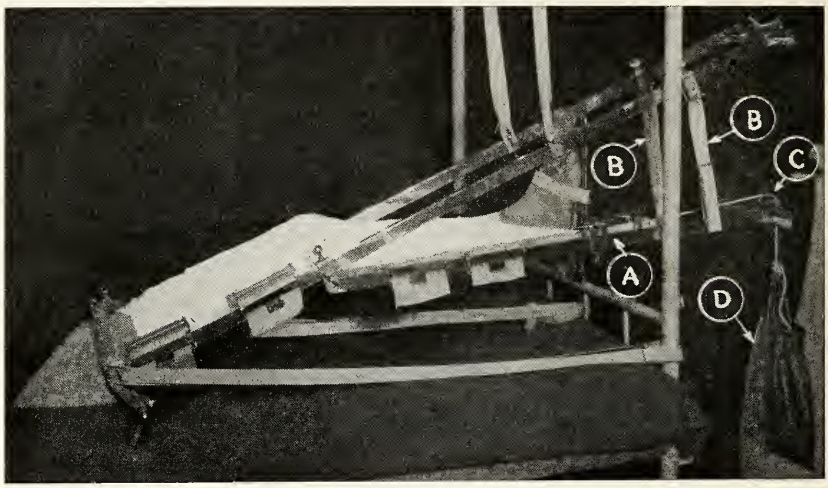


FIGURE 18. *Showing Long Attachment Bar A for Use in Treating Fractures Below Knee*—Note how this bar is suspended from upper bar by straps B B. Any angle or a double inclined plane effect can be obtained by adjusting these straps. Note pulley C on end-piece of attachment with weight D coming over this pulley, with upper bars suspended from overhead frame as shown and with weight arranged as shown, continues to give the effect of lifting thigh end of splint when buttocks is raised to use bed-pan.

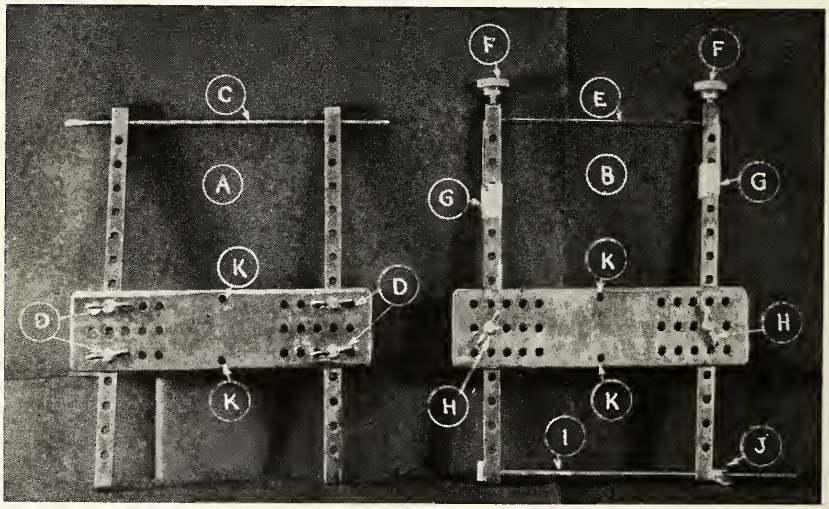


FIGURE 19. *Showing a Simple Carrier for Nail or Wire When Skeletal Traction is Used*—It is adjustable to any size leg. Note in carrier A, that when nail is used, two thumb-bolts D D are used. Letter K shows hole to which traction rope is attached.

Note in carrier B that thumb-nuts F F are screwed down on wire and that the outer ends of wire are turned down and fastened with strips of adhesive. Note that only one thumb-bolt—H H is used; this makes a fulcrum so that when thumb-nut J is tightened any amount of tension can be made on wire E.

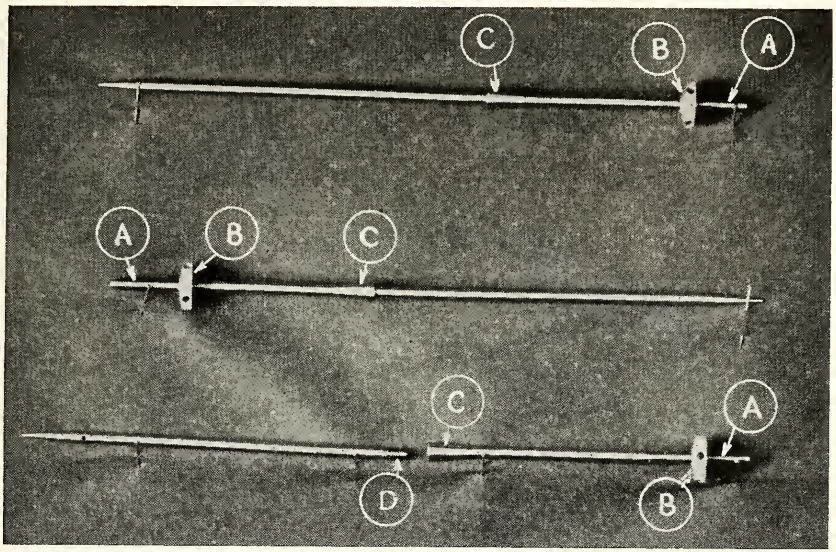


FIGURE 20. *Showing Special Nails for Use With Distraction Cuffs*—Note shoulder C C near center of nail. Note threaded end A A A and thumb-nut B B B. Note how nail can be unscrewed at the shoulder. This is a tapered shoulder one-quarter inch in diameter at the base. The rest of the nail is three-sixteenths of an inch. Having the screw part go into this shoulder makes a very strong joint with no danger of breaking and the nail can be unscrewed when it is ready to remove. This shoulder catches the edges of the bone and makes the lateral pressure shown in FIGS. 22-23.

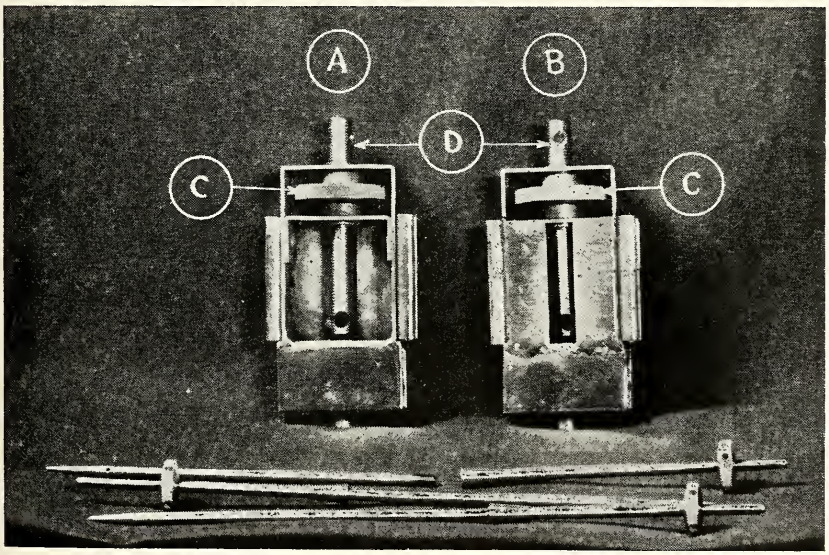


FIGURE 21. *Showing Distraction Cuffs Which Slip on Lateral Bars of Splint and Carry the Special Nails Shown in Fig. 20.* Note thumb-nut C C which raises and lowers threaded bolt D, which carries the special nails.

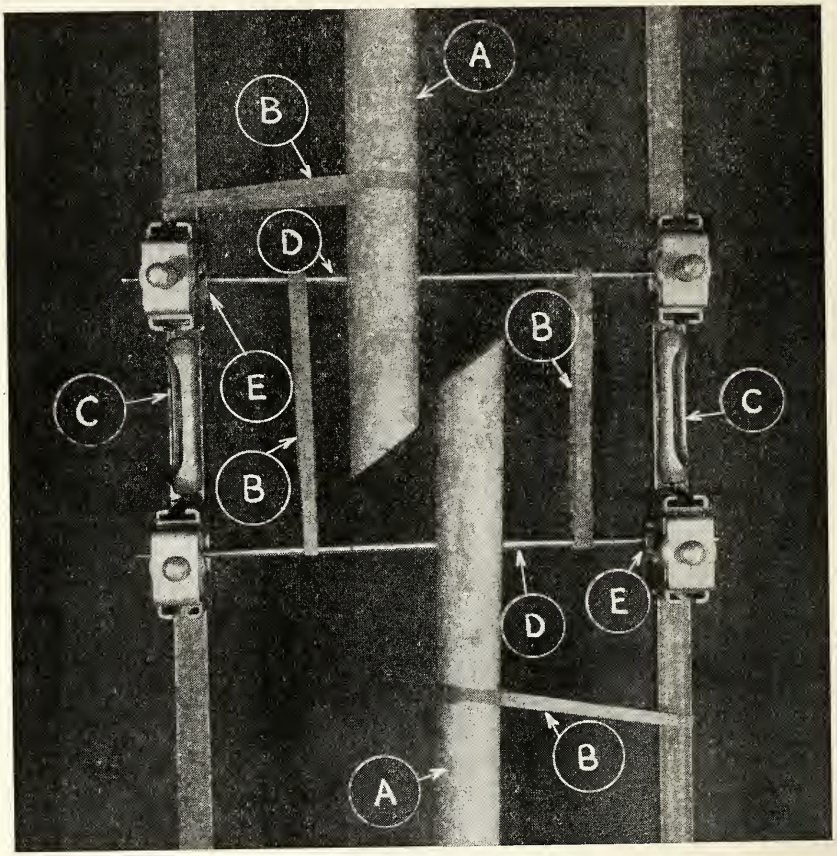


FIGURE 22. *Showing Distraction Apparatus On Splint With Stick A A to Represent Bone*—Note heavy rubber bands B B B B, which represent muscle pull. Note how by unscrewing turn-buckles C C shortening can be overcome and how by screwing thumb-nuts E E laternal deformity can be corrected. Note shoulder on pins at D D catching edge of bone.

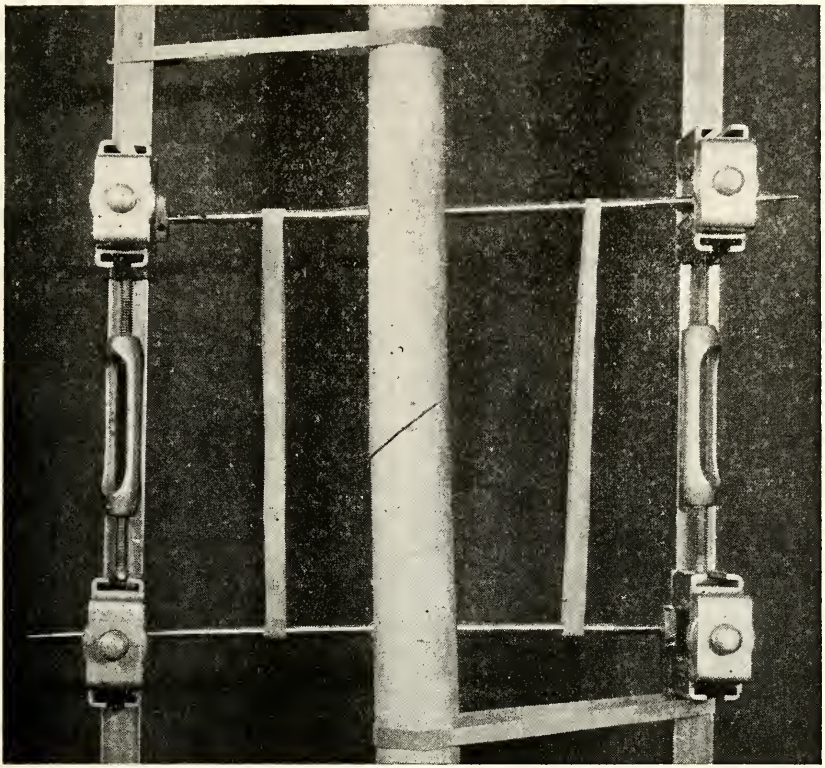


FIGURE 23. Showing FIG. 22 after adjustments have been made to correct displacement.

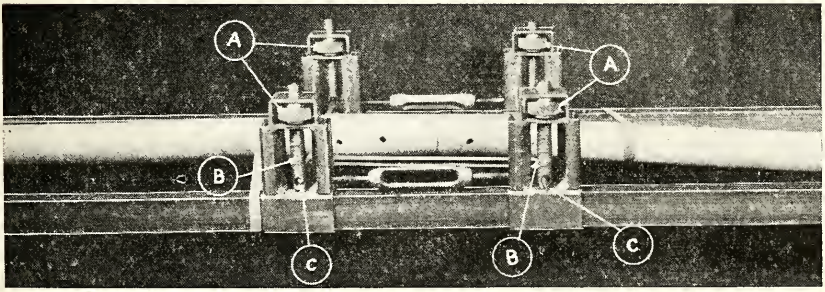


FIG. 24. *Showing Lateral View of Distraction Apparatus*—Note thumb-nuts A A and how screwing these nuts raises or lowers threaded rods B B which carry nails C C. Thus any antero-posterior or rotary deformity can be corrected by manipulating these nuts.

Dr. Alfred Rives Shands, Jr. (Durham): Mr. Chairman and Gentlemen: I was very much impressed by Dr. Allen's splint. Whereas it looks extremely complicated it is nowhere near as complicated as it looks. I think it is extremely simple and it shows that Dr. Allen has gone very thoroughly into all the scientific principles of the mechanics and treatment of fractures. Especially his last piece of apparatus which he calls his distraction apparatus is modeled on the idea of a great many pieces of apparatus which are seen abroad, especially in Germany, but it certainly has some features which are far superior to the foreign distraction methods. I feel that that will certainly have a permanent place in the treatment of fractures in this country.

I am very anxious to try out his fracture splint because I believe it involves some principles which others have attempted to put across, and also all of the traction methods which have been advocated in this country by such men as Scudder, and the other fracture experts.

I want to thank Dr. Allen very much for his presentation. If all of you have enjoyed it as much as I have, I am sure it has been very much worthwhile. (Applause)

Dr. J. M. Robertson (Wilmington): I just want to assure you that I enjoyed this presentation. I was fortunate enough to have had sort of a preview of this splint and I feel that Dr. Allen has obviated practically all the disadvantages of the Thomas splint and given us many new advantages.

I want to call attention particularly to his apparatus for holding the straps. I think it is one of the most ingenious things I have seen and certainly so much more efficient than the old paper clip or the safety pin that there is no comparison.

I want to say further for Dr. Allen that I have had the pleasure of seeing the X-rays and that if any of you feel you can't get sufficient traction with skin traction, I am sure a view of these X-rays will change your opinion because he gets with the skin traction anatomical reduction, and in one case he not only got enough traction to pull the bones down but he got enough traction on them to pull them apart. (Laughter and applause)

Dr. Allen (Closing discussion): Mr. Chairman, I don't think I have anything further to say except to thank these gentlemen for their kind remarks.

There was just one thing that I did not show. Some of you noticed these slots on the cuff. Ordinarily the patient's leg lies in there. If you see it sagging at any place, all you have to do in order to correct that is merely undo the buckle here. By doing that you can pull it up or you can let it down, and there is no way for that buckle to give.

The purpose of those slots in there is in order to get a lateral pressure on the leg. Suppose, for instance, we wanted to pull this leg over in this way. Suppose my arm is in there. You let it come into the slot and go over here, but the first time it does not come into the buckle. Then with the patient's leg in here like my arm is it goes down and goes into the buckle and you can get lateral pressure, and with the other strap pulling the other way you can direct it over in that direction by having a long strap here, and in transporting a patient you can also tie his leg in here so there is no motion at all.

One other thing: by using a long splint such as I have here you can use spring traction if you want to. Instead of using the rope, this pulley comes off at the end here, and you slip on your spring. This spring pulls forty pounds, ten pounds to the inch. You slip it on in place of that. The eye of this goes through the end of the spring and you get a screw down on this spring.

I do not like spring traction but where you have a patient that you are going to send off a distance in a splint it is a very serviceable thing in transporting the patient.

The trouble with spring traction is this: when the patient moves up and down in the splint the amount of your traction is varied, whereas with twenty-five pounds weight on it if he moves up and down the amount of traction remains the same.

If you pull the patient down with a fractured femur and then put sufficient weight on him to use it, it is all right. If you wait three or four days and let those muscles get set in there like a lot of us do you can't pull it unless you put skeletal traction or something in, and that is the importance of doing something now and having something to do it with.

Most of us, when a fracture comes in, have to run all over the hospital up and down hunting this and that, trying to get one up. It is a job to put up. But if you have your things in a chest like I have with rollers on it you can roll it right up to the patient, and I can put one of these splints on, I am satisfied, within thirty minutes from the time the fracture comes in, and pull him down, and it doesn't take much to pull him down and hold him, if you do it early. And after you once pull the patient down with the traction in there, hold it. Keep your tapeline tied to the splint, and measure him every second day.

Thank you. (Applause)

Chairman McKnight: Gentlemen, after the completion of our next paper, by our guest speaker, I want to ask if you will please remain in the room just for a few minutes for the purpose of electing a Chairman for next year.

We have had a number of treats this afternoon and we have still another one in store for us.

It used to be Dr. Judd's privilege and duty to tell us what to do and we did it or tried to. Now it has been my privilege to tell or rather request him what to do.

I asked Dr. Judd in arranging this program if he would be willing to come on last and he said he would be delighted to. I believe as we look around this hall and see the attendance we have, Dr. Judd will be glad that he did.

Gentlemen, it is a great pleasure to present to you again our guest speaker, Dr. E. Starr Judd, of Rochester, Minnesota. (Applause)

SURGERY OF THE BILIARY TRACT

By E. Starr Judd, M.D., Rochester, Minnesota
President American Medical Association

In this consideration of surgery of the biliary tract, I shall try to show the definite relationship that exists between the fundamental sciences, physiology, histology and bacteriology, and the practical surgery that we are doing today.

The physiology of the liver is of importance. Regardless of the fact that years ago Bernard's research work in physiology of the liver determined that the liver has a particular function of storage of glycogen, and that similar work has been done by research workers since that time, yet a great deal remains to be learned before material advance can be made in surgical procedure.

Unfortunately, there is no accurate test of hepatic function. The dye retention test helps some, the glucose tolerance test, and measures of that kind, but the very next step in studies of physiology of the liver must be development of some accurate means of telling whether the liver is functioning or not, and how well it is functioning. Recently research institutions have added a little to the fund of information on the subject.

The circulation in the two different parts of the liver is apparently absolutely separate. Studies were made at the Mayo Clinic, by injecting the portal circulation and the hepatic circulation with fluids of different colors, and then corroding the hepatic substance away. This work followed much the same plan as Hinman's study of the kidney. It showed very clearly that there are separate circulations in the liver.

REGENERATION OR HYPERTROPHY IN THE LIVER

The liver has a very marked inclination toward hypertrophy. Probably a very small piece of liver will carry on all of the hepatic function that is necessary. For instance, if three-fourths of the liver of an experimental animal is removed, and one-fourth with good circulation and nerve supply remains, that animal apparently will get along just as well as before the operation. One cannot determine by any test of hepatic function that the physical condition of this animal has been changed at all. In other words, one-fourth of the liver probably can carry on adequate hepatic function. A female dog from which three-fourths of the liver has been removed can go through pregnancy in an absolutely normal way. The rapid hypertrophy that takes place is of much interest. It has not been possible to determine accurately whether the reformed liver (this hypertrophied hepatic tissue) functions as well as the normal tissue did. But it is known that if three-fourths of the liver is taken out, the incision closed, and the dog allowed to run about as usual, and that then, if in six weeks, his peritoneal cavity is opened, it will be found that his liver is of about normal size. If another two-thirds of it is taken out, and he is turned loose again, and if he is brought back

in a few months' time, he again has a liver of normal size. At the Institute of Experimental Medicine, we have a number of experimental animals from which we have removed a great deal more than the normal amount of hepatic tissue, but they still apparently have normal hepatic function.

Often one wonders about trauma to the hepatic ducts. I think the right hepatic duct is more frequently traumatized than is realized, perhaps completely tied off, and nobody ever knows it. Similar situations arise as a result of obstruction from stone. One lobe of the liver may be thrown out of commission by complete obstruction of the duct by stone. In one case that I recall, the left lobe of the liver atrophied completely. There was no bile coming in from the left hepatic duct at all for it had been blocked by calculi. The right lobe was tremendously hypertrophied. This is a practical illustration of just the point that I want to bring out: the tremendous power of the liver to undergo hypertrophy. If the liver has any kind of a chance at all it will restore itself and go back to work.

CHANGES RESULTING FROM THE LOSS OF THE GALLBLADDER

When the gallbladder is removed or destroyed, the loss of function of the gallbladder produces changes in the biliary tract. Not all of them are understood at present. The change produced in hepatic and common ducts from loss of the gallbladder or loss of its function, is dilatation. It occurs when the gallbladder has not been removed, but is completely destroyed. A stone in the cystic duct may block it, and the gallbladder may become merely a cyst, with the biliary ducts all tremendously dilated.

Mann and I called attention to that change some years ago. We observe it more and more. Whether dilatation of the ducts results in any symptoms or produces any changes that the human being is aware of is difficult to say. It may possibly be responsible for certain symptoms. For instance, we know there is a very small proportion of cases (we now have records of about fifty) in which, after the gallbladder is removed, the patients continued to have symptoms. In the cases we saw, cholecystectomy was performed for definite disease of the gallbladder, frequently associated with stones. The patients continued to have symptoms, or maybe they had an interval of relief, and then recurrence of symptoms some months or years afterward. Even second operation did not reveal any condition that explained the disturbances. That is a phenomena that we do not understand. It is barely possible that the symptoms are caused by changes produced in the intrahepatic and extrahepatic ducts, as a result of the same sort of disease as occurred in the gallbladder, or as a result of changes following cholecystectomy.

CHANGES RESULTING FROM STRICTURE AND OBLITERATION OF THE DUCTS

When a stone causes intermittent obstruction of the duct, more marked change in the biliary tract ensues. Injury to the common bile duct, either from a definite infection and cholangeitis, or from stone,

may result in a stricture of the duct. Anything that causes an inflammatory reaction can cause tremendous change in the intrahepatic bile ducts. As a result of these obstructing processes and the changes that go on, there may eventually be produced complete obliteration of all of the bile ducts. At the clinic, we have patients who come with strictures of the common bile duct after having had the gallbladder removed. Some strictures are due to trauma. We formerly thought that all of them were due to trauma. I am convinced that we were wrong about that. I am sure that some of these patients have exactly the same disease in their bile ducts that they had in their gallbladders when they were operated on.

The following case is typical: a woman's gallbladder was removed for definite cholecystitis with stones. She remained entirely well for two years; then she returned to the clinic with painless jaundice, which evidently was due to an obstruction of the duct or ducts. We were unable to recover any bile through the duodenal tube. There was no bile going into her intestinal tract. She had had no symptoms except gradual onset of jaundice and this had become extreme.

I operated on her, expecting to find some sort of stricture of the duct or a stone. After considerable difficulty I approached along the surface of the liver to the point at which I expected to find the common bile duct but I was unable to find a duct of any kind. However, I did get into a pocket and recovered some bile. It seemed to me that the best thing to do was to leave a tube in that region and allow her to establish a fistula to the outside. I just could not figure out what had happened. She had been entirely well for two years after her gallbladder had been removed. It is hard to conceive that any trauma made at the time of operation could have resulted in complete obliteration of her common bile duct. She returned after a year, because she was not doing so well as she had been.

I thought that the fistulous tract might be definite enough to anastomose to the intestinal tract, and I operated on her again. I could not find a fistulous tract of any consequence; therefore, I had to give up and put another tube into the pocket, and allow her to continue as she was. She lived for a time after that, but when she died this is the condition in which we found her liver: There was not a single open bile duct of any kind; all were practically entirely obliterated, and a tremendous amount of fibrous tissue had formed. In other words, this case illustrated the extreme of inflammatory reaction in the bile ducts that is similar to the inflammatory reaction in the gallbladder itself. The inflammatory process may progress and result in complete obliteration of the biliary ducts.

HEPATITIS

The next problem that I want to bring to your attention also concerns the liver. It is the change which is termed "hepatitis." Prof. Evarts Graham, of Washington University, at St. Louis, first called attention to hepatitis associated with cholecystitis. It had not been realized that anything like this existed. It is now known that the condition is more common in association with early cholecystitis. Hepatitis is

always found where there is definite cholecystitis. The difficulty is that frequently it is found where there is not a sufficient degree of cholecystitis to be recognized.

DETOXIFYING FUNCTION OF THE LIVER

That brings up another question: The liver has a very marked detoxifying function— it is constantly detoxifying poisons that are sent to it through the portal circulation, maybe toxins from bacteria or toxins from chemicals. Under certain circumstances, could change in the liver result from that detoxifying process? In other words, could hepatic tissue be replaced to a certain extent, by fibrous tissue? I do know this: an experiment done at the Institute of Experimental Medicine last year disclosed what tremendous detoxifying influence the liver has. One of the men, working on an experimental animal, took out the heart, lungs and liver in a single section, and kept those organs functioning by transfusion and artificial respiration of the lungs. Then he practically poured strychnine into the portal vein. He put enough strychnine into the portal vein to destroy a number of dogs. That strychnine absolutely disappeared. The liver kept on functioning, the bile kept on flowing, the lungs worked all right, and the circulation continued. Of course, this part of an animal could not be kept functioning very long, but the amount of strychnine used, if put into a living dog, would have killed him in a few minutes. What happened to the strychnine, was impossible to tell. We could not recover it from the blood or liver. It disappeared. I think this work, done by Priestley, is one of the best evidences of the fact that the liver has a tremendous detoxifying function. It may be that this change that is called hepatitis is a result of that detoxifying process; it might also be the result of infection due to bacteria, but neither can be proved.

Two years ago I started to study this phase. In every case in which I operated for disease of the biliary tract, if there was marked hepatitis, I took out a piece of the changed hepatic tissue and gave it directly to the bacteriologist (not the pathologist, because I knew what he would say) and asked him to see if he could recover any bacteria from the specimen. We got all sorts of organisms from the specimens but we were never able to recover anything that would reproduce a similar condition in animals. As a matter of fact, hepatitis is apparently peculiar to the human being; it is not seen in animals. Whether bacterial invasion directly causes it is impossible to say. The possibility of cirrhosis of the liver developing as a result of this extensive inflammatory reaction has been suggested, but I do not think it ever occurs.

THE RECOGNIZED CAUSES AND TYPES OF DISEASE OF THE GALLBLADDER

There are several very interesting problems to be considered. In the first place, there is infection, ordinary cholecystitis without stones.

Are papillomas evidence of disease in the gallbladder? I do not think that has been determined. I do not know how it will be possible to determine it. The only difference known between the gallbladder with

papillomas and the normal gallbladder is this: The gallbladder with papillomas is more highly functioning than the one without them, possibly due to the fact that the mucous surface is larger. That type of gallbladder will concentrate bile to a higher degree than will the normal gallbladder.

Any consideration of the cause of pathologic change in the wall of the gallbladder itself, whether this is due to bacteria or not, constitutes a big problem. We have studied it at the clinic. Deaver studied it, and many others who have worked on the gallbladder have studied it. Wilkie, of Edinburgh, especially has made an exhaustive study to determine whether bacteria caused this change in the wall of the gallbladder.

About all we learned after a study of a large number of specimens is this: Examination of stones routinely disclosed bacteria in about 30 per cent of them; bile from a gallbladder will contain bacteria in about 15 per cent of the cases. When the walls of the gallbladders were examined after they had been thoroughly washed off and crushed, causative bacteria were found in less than 49 per cent. That leaves a fairly wide margin of cases that have not been explained by bacterial invasion, so that something else must be a factor.

The experimental work has been accurately done. Wilkie raised a question: he thinks that whenever the wall of a gallbladder is crushed to get it ready for bacteriologic study, the organisms in the wall of the gallbladder are exposed to the bile, in spite of anything one can do. For this reason, he started to study the lymph nodes down at the cystic duct, which of course did not come in contact with bile. In cases of cholecystitis he recovered organisms that apparently were causative in 80 per cent of the cases. This, then, is a factor to be considered.

The condition of cholesterosis comes up for consideration; "strawberry gallbladder" is the nickname for it. There are little white spots which histologically represent deposits in the wall of the gallbladder. Operating on patients who have typical symptoms of disease of the gallbladder one frequently finds this condition. Removal of such a gallbladder has often cured the patient of his symptoms. Usually bacteria are not found in this type of disease. Histologic study of the wall occasionally discloses a little inflammatory change; sometimes, none. Meisner and Sweet, at the University of Pennsylvania, worked for a considerable time on this problem, and finally concluded that those white deposits were merely indications of the fact that the gallbladder had a function in the metabolism of fats, and I think very likely that is true. Whether cholesterosis could be called a metabolic disease or not, I do not know. One may find this condition of the gallbladder unaccompanied by symptoms but one may find gallstones too which have not made their presence known. One does not find stones unless there has been some disease, either bacterial or metabolic. As I say, if such a gallbladder is removed from a patient who has had typical attacks referable to the gallbladder his symptoms usually will be relieved. Thus, this brings up the question of disturbed metabolism as a possible factor in disease of the biliary tract.

During the war Mann was assigned the problem of studying the

toxicity of Dakin's solution. It was being used for all sorts of war wounds, and not much was really known about its toxicity. Working with experimental animals, Mann injected Dakin's solution into the peritoneal cavity and elsewhere, and he got all sorts of results, but one fact stood out strikingly; Dakin's solution and other substances, in a very large proportion of instances, will result in changes in the gallbladder of the experimental animal, before any other tissue is affected at all. The liver will remain perfectly normal, but the gallbladder will undergo decided change which, histologically, is equivalent to the change seen in definite cholecystitic disease, without bacteria, and so it is also possible that change in chemical constituents of the blood may affect the biliary tract.

It seems to me that many fundamental problems must be reviewed before much progress will be made in the surgical side of these problems.

SELECTIVE ACTIVITY OF BACTERIA

By injection of a strain of streptococci that we at the clinic obtained from the gallbladder of a human being, Rosenow obtained a striking inflammatory reaction in the gallbladder of an experimental animal. He put these organisms into a vein of an experimental animal, and observed this same sort of a reaction. Of course, that brings up the question of selective activity of bacteria. Rosenow recovered the organism from the gallbladder in a considerable proportion of animals. The gallbladders of the animals are somewhat changed, but that does not account for all of the changes in the biliary system, I am sure. Gangrenous gallbladder brings up another problem.

In the last year or two, at the University of Chicago, Dragstedt and a number of other investigators have offered considerable evidence that Welch's bacillus is important in study of the bacteria in conditions of the biliary tract. In one of their first studies they considered normal cases. That is, they would take a piece of liver from an experimental animal (and this may have some practical bearing on surgical cases) and drop it back into the peritoneal cavity. The animals invariably died within forty-eight hours. Necropsy disclosed what was evidence of definite peritonitis. It was not the ordinary peritonitis that results from pus-producing organisms. There is fluid in the peritoneal cavity, and from that fluid Dragstedt was able to recover Welch's bacillus in a considerable number of instances. Therefore, he thinks the condition which has been called "autolysis" is not autolysis, but that it is peritonitis produced by Welch's bacillus. At the clinic then, we began the study of gangrenous gallbladders.

A report came from English investigators that they were recovering Welch's bacilli from a large percentage of gangrenous gallbladders. So far our work has not been very encouraging. In a very few instances, we have been able to recover Welch's bacilli from gangrenous gallbladders. The work is complicated by the fact that if necropsy is not done promptly after death Welch's bacilli will be found in great numbers anyway. Dragstedt thinks that the liver contains a large number of Welch's bacilli all the time, and that when certain conditions are im-

posed, the bacillus causes peritonitis. For instance, he injected a sterile solution of bile salts into the peritoneal cavity of experimental animals. This solution was definitely sterilized; there was no question about that; there were no bacteria in the solution. Nevertheless, as a result of the trauma produced by the bile salts in the peritoneal cavity peritonitis due to Welch's bacillus was set up in these animals.

It occurred to me that possibly we might find Welch's bacillus in some of our operative cases. I think we, at the clinic, have studied six or eight cases carefully, and apparently Welch's bacillus was not the cause of the gangrenous type of cholecystitis we found at the time of operation.

Then we tried to see whether the circulation could be a prominent factor in gangrene of the gallbladder. Metallic mercury was injected into the vessels of the gangrenous gallbladder, to see what the circulation really was. It was found that the gallbladder has a tremendous blood supply, so that reducing circulation to the gallbladder apparently is not often a factor that enters into the production of a gangrenous process in the viscus.

A type of gallbladder that has created a good deal of interest just recently is being studied by Essex at the Mayo Clinic and also by men at the University of Chicago. They say they can produce gallstones, calcium stones and calcium deposits in the wall of the gallbladder by obstructing the cystic duct. Perhaps this study will ultimately give a better idea of the etiology of these conditions.

SPHINCTERIC ACTION AT THE END OF THE COMMON BILE DUCT

I also want to consider the mechanism of the ampulla at the end of the common bile duct. Puestow made some studies last year at our Institute of Experimental Medicine. Many previous studies have been made of this ampulla, what happens to it after the gallbladder has been removed, and so forth. A good many investigators have insisted that there is no ampulla. It had been claimed that bile did not enter the duodenum under the influence of sphincteric action. Puestow endeavored to determine the influence of food on the activity of this sphincter at the end of the common bile duct. He isolated the ampulla, then he started his studies of feeding and he obtained all sorts of interesting data. One point I want to stress. It is something that never has been understood: it is known that the bile ducts dilate tremendously after the gallbladder has been removed, and that the normal pressure of the bile in the common bile duct is about 120 mm. of mercury. Estimation of pressure of the bile thirty to sixty days after removal of the gallbladder of an experimental animal reveals little if any pressure. Therefore, it must be inferred that some time following cholecystectomy the sphincteric action of the ampulla at the end of the common bile duct is greatly diminished or absent. Here is the interesting observation which presents an entirely different problem in the studies. Within twelve to twenty-four hours after the gallbladder had been removed all the sphincteric action seemed to be overcome. As a result of this, there is a constant flow of bile through the ampulla. I think that is yet to be explained. I do not see how removal of the gallbladder, which seems

to be without any connection with the ampulla, or with this region, could result in upsetting sphincteric activity, but it always does. It may be that the sympathetic nervous system is involved in this change.

DISTRIBUTION OF STONES IN THE BILIARY TRACT

Following is essentially the distribution of the cases as we see them at our institution: stones are found in the common bile duct only in about 5 or 5.5 per cent of the cases; stones in the common bile duct and in the gallbladder, in about 7 per cent, and stones in the gallbladder only, in about 86 per cent. So that, after all, the common bile duct is considered in only a very small proportion of cases. I would like to state, however, that we have endeavored to communicate with the patients operated on in 1908, 1909 and 1910, more than twenty years ago. The most striking feature learned from the replies from a practical standpoint, after consideration of cholecystotomy, cholecystectomy, or operations on the common bile duct, is that the best results were obtained when the gallbladder was removed and the common bile duct drained. That does not mean that the common bile duct should be drained in every case; I am sure of that, but it does mean that if there is any indication of hepatitis, if there is thickening of the bile ducts, or if there is dilatation of the bile ducts, the common bile duct should be drained, in addition to removal of the gallbladder. The patients that received the least relief were those whose gallbladders were drained. That fact was outstanding.

CARDIOVASCULAR AND RENAL DISEASE OCCURRING WITH DISEASE OF THE BILIARY TRACT

I would like to mention just another interesting observation: In the group of cases which we studied twenty years after the gallbladder had been removed, we noticed that in a very high proportion a cardiorenal or a cardiovascular condition had developed some time later. We are rather inclined to think right now (I do not know whether we have sufficient reason for thinking so) that the patient who has disease of the biliary tract is more prone to have a cardiovascular or a cardiorenal condition. It was at least striking in this series, but since we cannot prove the relationship, I suppose we ought not to say much about it.

Formerly, when patients had angina pectoris or another cardiac condition and also a disease of the biliary tract, we used to say: "On account of the risk due to the heart trouble we had better not operate on the gallbladder." Now we have reversed our opinion and say to the patient: "Because you have disease of the gallbladder and an associated cardiac condition there is all the more reason for removing the gallbladder."

Williams called attention to the fact that 54 per cent of patients with angina pectoris who had coincident disease of the gallbladder were very much improved, as far as their cardiac condition was concerned, after the diseased gallbladder had been removed. I do not know whether the complete explanation of this, on a basis of infection, will ever be forthcoming, but some of the patients apparently never had any other attacks of angina pectoris after the gallbladder had been removed.

The first thing one must think of is the possibility of a mistake in

diagnosis, that the pain may have been due entirely to the condition of the gallbladder, and that is very likely true in a certain proportion of the cases. But most of those patients who could bring on their attacks by exertion, and so forth had, in addition to the gallbladder trouble, very definitely proved impairment of the heart. This, then, is just another point that I think must be followed: patients who have disease of the biliary tract often have cardiovascular and cardiorenal conditions, a combination about which very little is known.

TECHNIC OF CHOLECYSTECTOMY

Just one or two technical problems might be mentioned. In taking out the gallbladder, I cannot agree with the surgeon who starts at the top. There may be a few cases in which it should be done that way, but the first, and really a very important point in performing cholecystectomy, is absolutely to isolate the lower end of the gallbladder and cystic duct before anything else is done. These structures must be taken away from all the surrounding tissue. I think the common duct is not traumatized as much as formerly. But by beginning dissection at the bottom of the gallbladder it is impossible to traumatize a duct. Every general surgeon knows the condition that will result from traumatizing a duct.

DRAINAGE OF THE COMMON BILE DUCT

I want to call attention particularly to a plan that I think has changed our results considerably in operations on the common bile duct, and that is prolonged drainage by placing a "T" tube in the duct. On my own service, I use this practically every time I open a common bile duct. The tube is accurately stitched in the duct, and that gives absolute and complete control of the flow of bile. The tube should be left in for a number of weeks. I am convinced that this prolonged drainage has added very materially to the improved results from surgery of the common bile duct.

In case there is a tendency to stricture, as is possible when there are small, broken stones, much mucus, and considerable cholangeitis, and in which there is actually pus in the gallbladder or in the common bile duct, prolonged drainage is imperative. Some patients with these conditions, we allow to go home for weeks or even months and to take care of themselves. Perhaps they can keep the tube entirely closed for most of the time. In any event, after the tube has been in for a number of weeks, they close it off for a few hours every day, and then they allow it to drain for a few hours, just to relieve the tension. But they can go on almost indefinitely in this way if necessity demands. Deaver had cases in which drainage by T-tube was maintained four, five, and six years. Prolonged drainage has a definite field in surgery of the biliary tract.

Thank you very much. (Applause)

CHAIRMAN McKNIGHT: Gentlemen, on behalf of the Surgical Section, I want to thank Dr. Judd for his splendid remarks. We sincerely appreciate them from the bottom of our hearts.

Following which Dr. Wm. H. Sprunt was elected chairman of this section for 1933.

. . . The meeting thereupon adjourned at five-thirty o'clock. . . .

SECTION ON PEDIATRICS

TUESDAY, APRIL 19th, 2:00 P.M.

The meeting convened in Lecture Room "B" of the Robert E. Lee Hotel, Winston-Salem, North Carolina, at two o'clock, Dr. Sam F. Ravenel, Greensboro, presiding as Chairman.

CHAIRMAN RAVENEL: Ladies and gentlemen: I do not know whether Chairmen have committed errors in the past before our sessions, but I feel that I have committed a very grievous error. I was under the impression that the time allowed for these papers would be twenty minutes. I was told that by one of the officials of the Society who was also in error. For that reason one or two of the gentlemen here may have a little difficulty in finishing on time.

I have selected the topic of purpura to discuss because I was interested in it and because there is a good deal of confusion in literature on the subject when one goes to look it up.

A CONSIDERATION OF PURPURA

By SAMUEL F. RAVENEL, M.D., Greensboro, N. C.
Chairman's Address

HISTORICAL

Werlhof[1] in 1731 first separated purpura from a large group of pathologic conditions with hemorrhage. The platelets were regarded by Hayem[2] in 1883 as "youthful red cells" and 5 years later Bozzozero[3] described them as distinct formed blood entities. Between 1888 and 1895 three investigators reported cases of hemorrhagic disease with diminished blood platelets, normal coagulation time and absent clot retraction. Duke observed the prolonged bleeding time and standardized the test for it in 1912. Kaznelson[4] reported the first splenectomy for chronic thrombocytopenic purpura in 1916.

CLASSIFICATION

Early classifications were primarily clinical, all cases of purpura being attributed to the same cause, varying only in intensity. The following classification is derived largely from the writings of Rosenthal,[5] and De Sanctis and Allen,[6] with some modifications of my own.

A. Purpura as a result of a diminished number of platelets from an unknown cause (idiopathic thrombocytopenic purpura).

1. Acute.
2. Chronic.

B. Purpura resulting from a diminution in platelets in the course of some definite underlying disease (symptomatic thrombocytopenic purpura). This is found in:

1. Diseases of the blood such as:
   (a) Acute and chronic aplastic anemia.

(b) Acute and chronic leucocytic or aleukemic leukemia of both types.
(c) Pernicious anemia.

2. In the course of certain infections; particularly:
   (a) Sub-acute bacterial endocarditis.
   (b) Meningococcus meningitis or sepsis.
   (c) Typhoid fever.
   (d) Miliary tuberculosis—especially that type confined largely to the spleen.
   (e) Any acute disease with toxaemia, such as scarlet fever.
3. In some diseases with splenomegaly:
   (a) Banti's disease.
   (b) Gaucher's disease.
   (c) Hemolytic jaundice.
4. In association with certain drugs such as:
   (a) Arsphenamine.
   (b) Benzene.
   (c) Quinine.
5. In the course of malignant neoplasms.
6. In metabolic diseases such as terminal nephritis.
7. In acute ulcerative colitis.

C. Purpura without decrease in the number of blood platelets (non-thrombocytopenic purpura) which probably is due to changes in the capillary walls. This also may be idiopathic or symptomatic. Such purpura occurs in the course of:

1. Any infection.
2. Hypertension.
3. Jaundice.
4. Scurvy.
5. Rheumatism.
6. Hemorrhagic disease of the newborn.
7. And as Henoch's or Schoenlein's purpura.

D. Certain atypical familial or hereditary purpuras[8] described by Glanzman, Minot, Buckman and others.

THE FACTORS ESSENTIAL TO NORMAL BLOOD COAGULATION ARE, ACCORDING TO BARKER[9]

1. A normal fibrinogen content of the blood—this is derived from the liver. In certain hepatic diseases there is an increased coagulation time due to decreased blood fibrinogen.

2. A sufficient supply of ionizable calcium salts. Faulty coagulation in chronic obstructive jaundice is considered by some authorities to be due to calcium lack.

3. A normal prothrombin content of the blood. Fibrin is formed by the action of thrombin upon fibrinogen. Thrombin is derived from prothrombin which has its origin in the platelets.

4. A supply of cephalin. This is set free from injured tissue cells and disintegrating white cells, but principally from the platelets. Slow-

ing of the liberating of this substance, because of increased resistance of the platelets, is alleged to cause delayed coagulation in hemophilia.

5. A sufficient number of blood platelets.

The above enumerated elements are all essential to normal blood coagulation. Blood does not ordinarily clot in the blood vessels because of the presence of antithrombin and anti-prothrombin. The platelets normally number from 250,000 to 500,000 per cu. m.m. and have their origin in pinching off of small bits of cytoplasm from the megakaryocytes of the bone marrow.

SYMPTOMATIC PURPURA

In symptomatic thrombocytopenic or non-thrombocytopenic purpura, the bleeding is merely an indication of some toxic or destructive process of chemical or infectious origin in the body affecting incidentally the blood forming organs or capillaries. All the formed elements of the blood are usually affected in some degree though not always. For example: In aplastic anemia there is a proportionate decrease in the number of red cells, white cells and platelets. In strictly toxic processes there are evidences of toxic action in other parts of the body as well as in the hemopoietic organs.

TREATMENT OF SYMPTOMATIC PURPURA

The treatment of symptomatic purpura is that of the underlying cause, with additional measures to control hemorrhage. Thus purpura associated with pernicious anemia yields rapidly to liver therapy. Acute thrombocytopenic purpura is usually secondary to some severe infectious or toxic process. For this reason splenectomy is ordinarily contraindicated. However, a few instances[23, 24, 26] have been reported in which the operation was dramatically successful after all other measures had failed. It may be worth resorting to in fulminating cases without evident underlying cause and with a normal granulocyte count. In a case of acute thrombocytopenic purpura due to sensitization to quinine, the drug was discontinued and bleeding controlled by blood transfusions until the toxic process subsided. A recent communication[10] reported the cure of a chronic thrombocytopenic purpura by the excision of a spleen which was the seat of extensive miliary tuberculosis. A patient studied recently presented interesting features: A white female, aged 16 months, was seen in the third week of scarlet fever with cervical adenitis, purulent otitis media and hemorrhage from the mouth, nose, ears and into the skin. The hemoglobin was 30%, the white cells numbered 20,000 with 76% P.M.N., the coagulation time (Lee and White) was 4 minutes, bleeding time more than 55 minutes, clot retraction absent. A platelet count could not be obtained but no thrombocytes were seen in the stained smear, even after careful search. The prognosis was considered to be almost hopeless. However, 300 CC of citrated blood were administered intravenously. Bleeding ceased within 12 hours, the bleeding time became normal in 2 days and the patient recovered completely. This result is in accord with the impression that depression of bone marrow activity due to infection is usually temporary.[25]

CHRONIC IDIOPATHIC THROMBOCYTOPENIC PURPURA

McLean and his associates[26] prefer the term hemorrhagic thrombocytopenia, since purpuric manifestations are not essential to the disease and frequently are unimportant features.

Etiology: This disease is much more common in females than in males and 80% of the cases occur before the third decade. There are no racial limitations. Syphilis, tuberculosis and prolonged arsephanamine therapy have been disproved as significant factors except in rare instances. Several writers believe that foci of infection inadequately drained may be the cause. Their belief has not been supported by authoritative proof. Recent papers[11] advance as the cause toxemia from sepsis located in the upper respiratory tract.

Symptoms: The patient consults a physician because he is bleeding from one, or from several sites, has noted the presence of ecchymoses in the skin, or observes that he bruises easily. Hematuria, prolonged menstruation, epistaxis, hematemesis, melena, bleeding from the gums or from one of the mucous surfaces is almost always found. Convulsions and hemiplegia due to intracranial hemorrhage may occur. Bleeding in this location is regarded by some authors as the most serious hazard of the disease in early life.[26] It is to be emphasized that hemorrhage may be so localized and so profuse as to obscure the true diagnosis. Patients with severe hematemesis or hematuria of purpuric origin may be subjected to prolonged diagnostic and therapeutic procedures directed towards the gastro-intestinal or genito-urinary tracts. This is particularly likely to occur in patients with slight or absent cutaneous manifestations. Occasionally hemorrhage is lacking and few petechiae are noted.

PHYSICAL EXAMINATIONS

The patient usually presents no physical findings other than the site of the bleeding and petechiae or ecchymoses in the skin. Palpable enlargement of the spleen is an unusual phenomenon. Persistent nasal oozing not yielding to the usual treatment is common. If hemorrhage has been severe, weakness, pallor, tachycardia and tachypnoea are present.

BLOOD FINDINGS

The *red cells* and *hemoglobin* usually show changes commensurate with the degree and duration of bleeding. In chronic cases the reduction in hemoglobin may be extreme.

The *white cells* are ordinarily normal in number and percentage. A marked leucopenia with relative lymphocytosis and absence of blood regeneration suggests that the diagnosis is probably not purpura.

The bleeding time is almost always prolonged but may be normal. By the method of Duke, which consists in making an incision into the skin and blotting the drops of blood each half minute, the normal is 1 to 3 minutes. In purpura it may be as long as 24 hours.

The *coagulation time* is always within normal limits. This test, according to Fitzhugh,[12] is frequently misperformed, especially in the routine preoperative preparation for tonsillectomy. The usual method

employing blood obtained from a finger prick is fallacious—so much so that hemophilic blood obtained in this fashion *may* clot in normal time. The admixture of tissue juices obtained by trauma may be sufficient to nullify the hemophilic clotting defect and give a false normal finding. The same blood obtained directly from the vein will show an increased coagulation time with the method of Lee and White. This consists in placing the venous blood in a clean 8 mm. test tube and tilting it every half minute. Normal coagulation time by this method is 5 to 10 minutes.

The *platelets* are usually reduced in number, but not always. The count may be as low as 5,000 or as high as 200,000. It is ordinarily stated that bleeding occurs when the platelets fall below 60,000, but this is not invariably true. Hemorrhage may be present with 200,000 platelets and absent with 20,000. Bleeding time prolongation does not necessarily parallel platelet reduction.[12]

Clot retraction: The blood in thrombocytopenic purpura coagulates promptly but does not contract firmly. Absence of or reduction in clot retraction is one of the most important diagnostic criteria. This is determined by placing 5 CC of the patient's blood in a clean test tube and incubating it for 24 hours along with a normal control. Retraction is complete in 24 hours. The degree of retractility closely parallels the number of platelets.[12]

The *capillary resistance* or tourniquet test is almost always positive in purpura. This is performed by compressing the upper arm with the cuff of a sphygmomanometer at 90 mm. of mercury for 3 minutes. A shower of petechiae appears below the cuff in a positive test. This is indicative only of the resistance of the capillaries and may occur in many conditions other than purpura, such as hypertension. For this reason it is not a dependable diagnostic procedure.

It is important to remember that no single test is conclusive. Spontaneous remissions occur and during these all laboratory findings may be normal.

DIFFERENTIAL DIAGNOSIS

Pemberton[13] says, "It is extremely important to distinguish this disease from others in which hemorrhagic tendencies are common . . . the diagnosis may at times be extremely difficult and failure of an accurate diagnosis undoubtedly accounts for many of the poor results reported in the literature."

(a) Hemophilia:

Hemophilia has its peculiar sex linked hereditary character, occurs in males only, presents a normal bleeding time, platelet count and clot retraction and markedly prolonged coagulation time.

(b) Aplastic Anemia:

Aplastic anemia is characterized by a proportionate reduction in *all* the formed elements of the blood, a leucopenia with relative lymphocytosis, and absence of signs of regeneration. Anemia precedes hemorrhage while in purpura the reverse is true.[25] It is possible for chronic thrombocytopenic purpura to deplete the blood forming organs to such an extent that relative aplasia results. Ordinarily the time required to

produce this exceeds, by far, the duration of the average case of aplastic anemia. There is no evidence of regeneration of the blood. The pathology in aplastic anemia results from diminished bone marrow activity affecting the megakaryocytic as well as erythroblastic and myeloblastic tissues. This results in deficient formation of platelets, red cells and mature polymorphynuclear leucocytes. In purpura there is usually no general depression of bone marrow function.[25]

PATHOLOGY

Whipple[14] says, "Examination of the spleen after splenectomy—fails to shed any light on the cause of the disease." According to Giffin and Holloway[16] "—the splenomegaly of this disease is an acute splenitis."

From recent experimental work[16] the cause of the disease is thought to be an increased destruction of platelets by the reticulo-endothelial system of which the spleen is the largest single division.

It has been shown[6] that the platelets contain a thermolabile retracting ferment. If the platelets of normal individuals are added to the whole blood of thrombocytopenic patients, normal clot retraction is obtained. However, if the platelets are heated to destroy this ferment, there is no retraction. The platelets of thrombocytopenic patients have each their normal quota of thromboplastic substance. These washed platelets exhibit normal clotting function when added in sufficient numbers to the blood of normal patients. Therefore the cause of prolonged bleeding is not a disarranged clotting mechanism, but merely a decrease in number. The clot forms normally in the usual time but bleeding persists. This is due to the fact that although the platelets initiate coagulation (a purely chemical process), the bleeding is a dynamic mechanical process requiring the presence of clotting elements in greater concentration than is possible with the reduced number of platelets.[6]

What is the cause of the decreased number of platelets? There are only 2 possibilities—formation in insufficient quantity or abnormally rapid destruction in the circulating blood. In patients dying of thrombocytopenia, megakaryocytes (from which platelets are derived) normal in number and appearance are found in the bone marrow. This militates strongly against the first possibility. Rapid destruction in the circulating blood is indicated by the immediate and great increase in number following splenectomy in thrombocytopenic purpura. This also occurs following splenectomy in normal animals and humans. Several observers[17] have pointed out that the platelets in man increase with other operations as well as with splenectomy but that the increase is greater and of longer duration in the latter procedure.[18] It is logical to ascribe this sudden increase in thrombocytes to the removal of the agency largely responsible for their destruction.

Something comparable to a splenectomy may be produced in animals by the injection of a vital stain such as trypan blue.[19] The reticulo-endothelial system of Aschoff takes up this dye even to the extent of occluding the system with it. When this is done there is an immediate increase in the number of platelets closely paralleling the sequalae of splenectomy. The spleen is the largest single division of the reticulo-endothelial system. This type of tissue is also present in the liver, ac-

cessory spleen, haemal lymph nodes, lungs and elsewhere. It seems likely that the cause of the rapid destruction of platelets is to be found in some factor which activates the reticulo-endothelial system to unusual thrombocytolytic action.

LIFE SPAN OF PLATELETS

The normal life span of a platelet has been shown to be approximately 4 days. They are being constantly liberated into the blood stream by the breaking off of bits of cytoplasm from the megakaryocytes and destroyed by the reticulo-endothelial system at relatively the same rate. Patients with thrombocytopenia show improvement only so long as the platelets introduced from a normal exogenous source increase the total content to a level above that induced by the disease.[6] A remission occurs as soon as the level is lowered sufficiently. Frequently this happens in less than 4 days indicating greatly increased thrombocytolysis.

TREATMENT

At present there is but one therapeutic measure sufficiently justified by clinical trial to be advocated as a permanent remedy in severe cases; that is splenectomy. Fitzhugh[12] says, "Such procedures as blood transfusion, deep irradiation of the spleen with X-ray or radium, foreign protein therapy (blood, milk, horse serum), calcium and parathormone therapy, ultra violet light, etc., must be regarded as temporary measures to carry the patient through a critical period and prepare him for splenectomy. The so-called systemic coagulants, of which several on the market, have been energetically pushed, are of no value." Blood transfusions of either unmodified or citrated blood are equally effective in temporary arresting hemorrhage and in producing a transient rise in platelets comparable to that seen in splenectomy.[26]

CONTRA-INDICATIONS TO SPLENECTOMY

It is to be emphasized that aplasia of the bone marrow is an *absolute contra-indication* to splenectomy. This is stressed only by Barker,[10] Hess[25] and Payne.[20] The latter in addressing our own state society said, "We believe that there is an index of operability and prognosis to be found in . . . normal bone marrow activity in these cases. If the white cells and neutrophile count are normal or above, the prognosis is good. If there is a leucopenia with relative lymphocytosis and absence of regeneration, the prognosis is bad and splenectomy will result in death." These patients should never be subjected to operation until the white cells and neutrophile count approach normal and some evidence of blood regeneration is apparent. If the patient is suffering with purpura and not with aplastic anemia, repeated transfusions at frequent intervals will usually bring this about. As noted above, the life span of a platelet is normally only 4 days. Hence, transfusions may be necessary at very short intervals.

ELECTIVE OPERATIONS

Elective operations such as tonsillectomy and tooth extraction are not justified in the presence of active purpura.[12] No patient should be

operated upon with a bleeding time greater than 10 minutes or a platelet count less than 40,000 except for an emergency splenectomy. In such cases the bleeding should be controlled by blood transfusion or X-ray or a spontaneous remission awaited. Menstrual time is dangerous in females with thrombocytopenic purpura. Something happens rendering them more liable to hemorrhage at this time.[12]

END RESULTS IN SPLENECTOMY

The immediate effects of splenectomy are a rapid and tremendous increase in the platelets and cessation of bleeding. Later the platelet count falls to normal or below. There is also a marked but transient polymorphynuclear leucocytosis. Bleeding time and clot retraction become normal in a short time. A recent report from the Mayo Clinic[13] presents 41 patients with this disease subjected to splenectomy during a period of 8 years, with 39 living and 2 dead. In 36 cases the result was perfect; in 2 patients there has been slight recurrence of bleeding associated with infected tonsils and teeth.

The results in children are definitely better than in adults. Washburn[22] suggests that this is because the prognosis is more favorable when the spleen is removed early in the course of the disease.

Some authors[21] feel that splenectomized patients should be observed for at least 5 years before claiming a cure because of the possibility of recurrence.

RECURRENCE

This is noted occasionally following splenectomy and appears to indicate that although the major portion of the reticulo-endothelial system has been removed, there still persists a part elsewhere in the body that has continued its abnormal function or has been re-activated. Reported cases[23, 24] suggest as the cause, hyperplasia of the remaining reticulo-endothelial tissue associated with infection.

HENOCH-SCHOENLEIN GROUP OF PURPURAS

There is a group of purpuras[7] with *normal blood findings*, common in children and young adults, in which the ecchymoses are accompanied by erythema, urticaria, angioneurotic edema, or joint, visceral and renal manifestations. Headache is usually a feature.

The term Schoenlein's disease or arthritic purpura is used when joint symptoms are pronounced. This type is usually accompanied by high fever. Those cases in which *abdominal pain and colic* are the principal symptoms have been described under the name of *Henoch's purpura* or purpura abdominalis. When the cutaneous manifestations are absent, slight, or slow in developing, the difficulty of correct diagnosis may be extreme. Large amounts of blood may appear in the stools or severe hematemesis may occur. Albumen, blood and casts are almost always to be found in the urine. Abdominal pain usually precedes the skin lesions and for years may be the only symptom. Evidently, hemorrhages occur in the viscera earlier than in the skin. Patients with this disease have been operated upon for acute appendicitis, intussusception, intestinal obstruction, disease of the gall bladder and bile ducts, renal cal-

culus, etc. It is evident that in a young patient suffering obscure abdominal pain, a history of skin manifestations, joint pains, angio-neurotic edema, melena, or hematuria is of extreme importance. This is not a dangerous disease; fatalities are almost unknown. It has been suggested by numerous authors[7] that these symptoms are allergic in nature—that there is an invasion of the body by bacteria with the production of bacterial anaphylaxis—the capillaries being so altered by this reaction that there results an abnormal permeability of their walls. Accordingly, there may be produced erythema, angio-neurotic edema, purpura, abdominal crises, acute nephritis. Various therapeutic measures have been advocated—foreign protein therapy with milk, blood, etc.; removal of foci of infection; transfusion if blood loss is serious.

HEREDITARY HEMORRHAGIC THROMBASTHENIA

Glanzmann,[8] Minot, Buckmann, Rothman and others have reported instances of a typical purpura under the above name. These cases occur in both sexes, are always frankly familial or hereditary and are characterized by a normal platelet count. There is considerable variation in the bleeding time and clot retraction in different patients. The coagulation time is not altered and the hemoglobin determination and red and white cell counts show only such deviations from the normal as one would expect in an anemia due to loss of blood. The cause is not clearly understood but a functional insufficiency or qualitative pathologic change in the platelets is suggested. It is thought that the normal thermolabile retracting ferment is absent or present in less active form. In treatment, calcium and thromboplastin therapy, blood transfusion, splenectomy, etc. have been employed with indifferent success. Cauterization of lymphoid tissue in the nose and throat or tonsillectomy has helped those patients with epistaxis. Splenectomy is generally considered to be contra-indicated. Blood transfusion is of great aid in tiding the patient over severe attacks. It is encouraging that most of these patients stand operations well and tend to improve naturally with advancing age.

THE CASE OF RICHARD LAMBERT

A white boy aged 15 was seen in 1929 with a complaint of bleeding for 10 years. Nothing was known concerning any relative except a brother aged 18 and sister aged 10, who had been free bleeders and bruised easily but had never suffered severe hemorrhage.

His past history was unknown prior to the 5th year. He had had no illness except varicella. He had always been a free bleeder; superficial cuts bled for hours and once a deep one bled for a day and night. Purpuric spots were present in the skin much of the time. He suffered with recurring epistaxes which became more frequent and more difficult to arrest. There was never hematemesis, hematuria, or melena. He did not suffer with pain in the head, abdomen, or joints.

In January 1927 he presented no positive physical findings except cutaneous ecchymoses. Examination of the blood at that time revealed a moderate anemia, normal white and neutrophile counts, bleeding and coagulation time, and clot retraction. Platelets numbered 230,000 to

300,000. After that for some months he was in another state. The nose bleeds became more frequent and severe.

Six weeks before admission here he was placed in a hospital in Virginia because of prolonged epistaxis. Hemorrhage persisted for 2 weeks in spite of nasal packs. After an intravenous blood transfusion the bleeding ceased. He was sent to us with a diagnosis of hemophilia.

The boy was profoundly pale and unable to stand because of weakness and dizziness. The only positive findings were extreme pallor, weakness, one small ecchymosis and a positive Babinski reflex and sustained ankle clonus on both sides. Splenomegaly, adenopathy and jaundice were absent. Examinations of the blood revealed a hemoglobin of less than 10%, 1,300,000 R.B.C., a white cell count of 2,470, with 75% P.M.N., 40.000 platelets, normal coagulation time, a bleeding time of 6 minutes and absent clot retraction. There were no evidences of blood regeneration and no abnormal white cells. The fragility test of the red cells was normal. There was no urobilin in the urine.

In the differential diagnosis we considered:

Chronic thrombocytopenic purpura
Aplastic anemia
Aleukemic leukemia
Pernicious anemia
Hemophilia
Hemolytic jaundice.

Leukemia, aplastic anemia and primary anemia probably could not have endured 10 years. The absence of adenopathy, splenomegaly and abnormal white cells militated strongly against leukemia. Hemolytic jaundice obviously was ruled out by the normal fragility of the red cells and the absence of jaundice and splenomegaly.

Hemophilia was excluded by the normal coagulation time and thrombocytopenia.

We felt that the prolonged bleeding due to thrombocytopenic purpura had so exhausted the bone marrow that a condition of relative aplasia had resulted.

A splenectomy was considered to be necessary but temporarily contra-indicated by the aplasia.

He was given two citrated blood transfusions of 500 cc. each 4 days apart. Epistaxes occurred several times, so profuse that on one occasion 8 ounces of blood were lost before a nasal pack stopped the bleeding. After the second transfusion, the white cells increased to 6,300 and slight evidence of regeneration appeared. The hemoglobin was 45%, platelets 120,000, bleeding time 7 minutes. A splenectomy was performed by Dr. R. N. Harden. A third transfusion was given a few days later. Improvement was rapid. Slight epistaxes occurred for a few days after the operation, none thereafter.

Six months later he was the picture of normal health. The red and white cell counts, hemoglobin, differential, bleeding time, clot retraction all were normal. The platelets numbered 420,000.

The patient's perfect health has continued to the present.

INTERESTING POINTS WERE

1. The familial character of the disease.
2. The relatively normal bleeding time (6 minutes).

These findings suggest that this boy may have suffered with one of the atypical familial purpuras mentioned above, but the thrombocytopenia and absent clot retraction prevent such a classification.

3. The aplasia of the blood. We felt certain that a splenectomy would have resulted fatally had we not waited for a normal granulocyte count and evidence of blood regeneration.

4. The normal blood findings 2 years before splenectomy although the disease had been active for years. This bears out the observation that spontaneous remissions occur during which the laboratory findings may be normal.

5. The positive neurological findings. In extreme secondary anemia it is possible to have all sorts of bizarre symptoms and signs referable to the central nervous system—convulsions, various abnormal reflexes, etc.—without actual pathologic change. These disappear after transfusion.

THE CASE OF ....

A white woman of 45 was seen August 1931 with a complaint of bleeding from the stomach and bladder. The family history was irrelevant. There was nothing in the past history germane to the present complaint except an attack of typhoid fever, during which hematemesis probably occurred. The appendix and tonsils had been removed without undue hemorrhage.

She had always bruised easily and her gums had bled for many years; petechiae and ecchymoses had appeared in the skin at intervals for 15 years; severe headaches had occurred for 10 years; profuse hematuria had been noted 19 months and 1 month prior to my examination; tarry stools and weakness were symptoms for a time 8 months before; and an almost exsanguinating hematemesis and melena occurred 4 months before.

On examination the patient presented no positive findings except moderate pallor and a number of old and fresh ecchymoses. Determinations of the hemoglobin percentage and total and differential white cell counts revealed no deviations from the normal. The bleeding time was 13 minutes, coagulation time 3 minutes, capillary resistance test positive and clot retraction markedly diminished. The platelets varied from 130,000 to 160,000. Studies of the gastro-intestinal and genito-urinary systems revealed no abnormal findings.

A diagnosis of chronic thrombocytopenic purpura was made and a splenectomy performed by Drs. H. H. Ogburn and R. N. Harden.

Three days after operation the platelets numbered 350,000 and white cells 27,000. The patient has been in perfect health since. None of her former symptoms have returned. Examination of the blood at present reveals normal findings. The platelets number 280,000.

THE CASE OF JAMES BARNES

This patient, aged 3 years was admitted to the Sternberger Hospital June 1930 with complaints of swelling in the joints and stiff neck. He remained in the hospital 16 months.

The *family history* was irrelevant except for rheumatism in the mother.

The *past history* was negative except for measles, chicken pox, growing pains and repeated attacks of tonsillitis with swollen glands. He had been the subject of recurring bouts of poly-arthritis for 3 years. Some of these attacks were accompanied by high fever and great disability. Arthritis of the cervical spine had been constant for 2 years. During his stay of 16 months in the hospital he had repeated attacks of tonsillitis with acute poly-arthritis, fever and hemorrhagic nephritis. From time to time he has suffered severe epistaxes and purpuric spots have appeared in the skin often. One such episode is described:

In August, 1931 he suffered with a cold for several days. This was followed by the appearance of numerous purpuric spots in the skin and by hematuria. Physical examination showed showers of petechiae in the skin and on the palate, a low grade tonsillitis, cardiac findings typical of rheumatic heart disease, and a positive tourniquet test. Laboratory studies revealed absent clot retraction, a coagulation time of 3 minutes, 200,000 platelets, a bleeding time greater than 20 minutes, and blood in the urine and stools.

THE CLINICAL IMPRESSION WAS

1. Chronic Arthritis
2. The Rheumatic State
3. Rheumatic Heart Disease with Mitral Stenosis and Insufficiency and Aortic Insufficiency.
4. Secondary Symptomatic Thrombocytopenic Purpura.

The abnormal blood findings prevented this patient from being placed in the Henoch-Schoenlein group.

In the intervals between bouts of infection or purpuric episodes his general condition is excellent. During these intermissions he usually remains free from evidences of hemorrhage.

It is felt that removal of the tonsils as a focus of infection activating the rheumatism, chronic arthritis and probably the purpura is highly desirable. However, one is not justified in performing an elective operation in the presence of active purpura or upon any patient with a bleeding time greater than 10 minutes. Splenectomy is not indicated for frankly symptomatic thrombocytopenic purpura in a patient with a serious cardiac infection.

In an endeavor to produce normal blood findings he was treated by deep X-ray therapy over the spleen. Examination of the blood after months of treatment disclosed a normal coagulation time, capillary resistance test, clot retraction, white cell and differential counts, but a bleeding time still greater than 20 minutes. The platelets number 275,000. Tonsillectomy by the usual method is too hazardous. Electrocoagulation of the tonsils offers a solution to this problem and unless the bleeding time is reduced within the near future that operation will be performed.

BIBLIOGRAPHY

1. Werlhof: Opera Omnia Collegit et Auxit, Hanover, J. E. Witchman, 1775.
2. Hayem, quoted by Brahm: Inaugural Dissertation, Heidelberg, 1883.

3. Bozzozero: Virchow's Arch. f. path. Anat., 90:251, 1887.
4. Kaznelson, P.: Wein. Klin. Wchnschr., 29:1451, 1916.
5. Rosenthal, Nathan: J. Lab. and Clin. Med., 13:303, January 1928.
6. De Sanctis, Adolf and Allen, A. W.: Am. J. Dis. Chil., 41:3, March 1931.
7. Trimble, I. Ridgeway: J. A. M. A., 96:24, June 13, 1931.
8. Libman and Ottenberg: J. A. M. A., 81:2030, Dec. 15, 1923. Glanzmann, E.: Jahrbuch f. Kinderheilung, 88:113, 1918. Giffin, H. Z.: Amer. Jour. Med. Soc., 174:690, November 1927. Minot, G. R.: Amer. Jour. Med. Sci., 175:3, Mar. 1928. Buckman, T. E.: Amer. Jour. Med. Sci. 175:307, Mar. 1928. Giffin, H. Z.: Amer. Jour. Med. Sci. 175:44, January 1928. Rothman, P. H. and Nixon, N. K.: J. A. M. A., 93:1, July 6, 1929.
9. Barker, Lewellys: Med. Clin. N. Amer., 14:1, July 1930.
10. Kellert, E.: . A. M. A., 96:26, June 27, 1931.
11. La Rue, Claude L.: J. A. M. A., 97:13, September 26, 1931.
12. Fitzhugh, Thos.: Med. Clin. N. Amer., 13:4, January 1930.
13. Pemberton, J. deJ.: Ann. Surg., Vol. XCIV, p. 765, October 1931.
14. Whipple, Allen O.: Surg. Gynec. Obst., 42:329, 1926.
15. Giffin, H. Z. and Holloway, J. K.: A. M. J. Med. Sci., 1705:186 (Aug.) 1925.
16. Le Sourd, L. and Pagniez, P.: J. de Physiol. et de Path. Gen., 9:579, 1907; Compt. rend. Soc. de Biol. 60:1562, 1906; Bull. et Mem. Soc. Med. d. Hop. de Paris, 34:99, 1912.
17. Dawbarn, R. Y., Earlham, F., and Evans, W. H.: J. Path. & Bact., 31:833, (Oct.) 1928.
18. Bachman, E. L. and Hultgren, G.: Compt. rend. Soc. de Biol., 94:942, 1926.
19. Bedson, S. P.: Brit. J. Exper. Path., 7:317. (Oct.) 1926.
20. Payne, R. L.: Trans. Med. Soc. N. C., p. 104, 1928.
21. Ordway, Thomas and Gorham, W. L.: The Diagnosis and Treatment of Diseases of the Blood, Oxford Monographs, New York, Oxford Univ. Press, 1930. Daffinee, Ralph O. *et l.:* New Eng. Med. p. 42, July 2, 1931.
22. Washburn, A. H.: J. A. M. A., 94:313, February 1, 1930.
23. Reuben, M. S. and Claman, L.: Arch. Pediat., 45:84. (Feb.) 1928.
24. Killins, W. A.: J. A. M. A., 92:22, June 1, 1929.
25. Hess, J. H.: Med. Clin. N. Amer., 14:1073 (March) 1931.
26. McLean, S., Kreidel, K., and Caffey: J. A. M. A., 98:5, January 30, 1932.

SERUM REACTIONS

By Kenneth B. Geddie, High Point, N. C.

Since the production of diphtheria antitoxin by Von Behring[1] in 1890 numerous other serums and antitoxins have been recommended to be of value either as prophylactic or therapeutic agents. Some few have definitely earned their place. Many are no doubt valueless but the fact remains that the majority of children in their first few months or years have received some type of serum. This has brought, to every physician's mind, the problem of the patients reactions to injections of foreign substances. Since most of this type of prophylaxis and therapeusis has been developed within the past 15 years and the literature during this time has contained the most conflicting statements concerning the

danger or safety of the procedures, it seems to me that a general review of the subject would not be amiss.

It is probably unnecessary to point out the distinction between serum accidents and the serum disease, but to make these terms perfectly clear, I will attempt to do so. The most generally accepted opinion is that serum sickness is the usual response of man to the parenteral introduction of foreign serum. Serum accidents are the sudden, alarming, or even fatal reactions of individuals who are hypersensitive to the serum employed. There is such a divergence of opinions about where to draw the line between serum disease and serum accidents that many investigators discuss the two conditions under the one general heading of serum reactions. Indeed the fundamental factors underlying the two phenomena are probably very similar if not quite the same. As a matter of practical application we will consider the two conditions as distinct entities closely related. This distinction is sanctioned by custom and is particularly important because it serves to distinguish the dangerous from the non-dangerous form. Serum accidents are the serum reactions which appear within the first hour and usually within the first few moments after the introduction of the serum. According to Park,[2] serum accidents are fatal about once in every 50,000 injections of serum. Not a very large percentage you will agree, but it is one hundred per cent if it occurs in your patient. Serum disease is the serum reaction which occurs more than one hour after the injection of a serum. The morbidity from the reactions is much greater than that from serum accidents. It is not fatal. It leaves no permanent effects. It is most distressing to the patient. A preponderance of evidence supports the view that an antigen-antibody reaction is responsible for the phenomena of serum reactions. This conception is by no means universally accepted. Pirquet and Schick[3] in 1905 after a prolonged study came to the conclusion that serum reactions were due to the interaction between the antigen (horse serum) and specific antibodies produced by the injection of the antigen. This action probably takes place in the cells of the body and not in the circulation. Subsequent investigators have corroborated these conclusions and at the present time the consensus of opinion is that this is the true explanation.

The symptoms which constitute a serum accident usually have their onset immediately after or during the introduction of the serum. A latent period of as much as thirty minutes has intervened between the introduction of the serum and the onset of the reaction. When the serum accident is mild the only symptoms may be a few urticarial wheals, itching, and prickling sensations, a feeling of uneasiness or apprehension. In more alarming cases urticaria and erythema are generalized and severe; there may be dyspnea, cyanosis, edema of the face, tongue, throat, coughing, frothy expectoration, urination, defecation, and sometimes collapse. In rare cases death occurs. When the symptoms of serum accidents are analyzed it is seen that each one can be accounted for by the formation of the urticarial wheal or the contraction of unstriated muscle. Both of these phenomena are due to parasymphathetic stimulation. The prompt relief usually afforded by epinephrine, a sympathetic stimulator, makes this conception by Waldbott[4]

a practical one for consideration. The type of serum reaction occurring in various laboratory animals can be clearly explained by knowledge of the distribution of their smooth muscle. It is well recognized that the unstriated muscle of a sensitized animal reacts very strongly to "anaphylactic poison." Dale[5] has formulated a physical conception of the reaction. "All that is needed," says he, "is that the antibody should have such a specific physical relation to the antigen that when the two meet, a disturbance of the condition of colloidal solution is set up in the muscle fiber." Less than 100 fatal cases have been reported to date. We can only surmise how many deaths have occurred and have not been reported. In 1924 Lamson[6] carefully reviewed all of the verified reported cases and could only find forty-one. A study of these cases brings out clearly that there are two groups of individuals susceptible to such accidents. One group (comprising of 34% of the total number), are the ones who have an immediate reaction the first time a serum is injected. They are the "horse asthmatics" *i.e.* they are people who have allergic rhinitis or asthma when they come in close association with horses. As little as 0.5 cc. of horse serum injected subcutaneously has caused death in such an individual in spite of large doses of epinephrine promptly administered. Also belonging to this group are individuals who have not received a serum injection but are sensitive to horse serum by skin test. The second group consists of those who have been sensitized to horse serum by previous injections of serum. (In 41 cases collected by Lamson only 8 cases had been given previous injections of foreign proteins and in 31 there was no history of such an injection.) One of the questions of practical importance to us is: Does the small amount of horse serum—.0001 cc. per dose—in toxin-antitoxin sensitize the patient and if so, how can subsequent injections of serum be administered with greatest safety? The answer to the first question according to Hooker[7] is that 27% of individuals who reacted negatively to horse serum before toxin-antitoxin immunization subsequently reacted positively. Park confirms this with a slightly smaller percentage but considers the sensitivity to be so slight as not to increase the danger for subsequent therapy. Others (Stewart,[8] Gatewood and Baldridge[9] and, Lathrop[10]), have reported severe reactions to serum in those previously immunized with toxin-antitoxin. No fatalities have been reported in this toxin-antitoxin group. Dr. Helmholz and Dr. Amberg of the Mayo Clinic, in a personal communication, state that it is their impression that serum reactions are much more frequent and severe since the introduction of toxin-antitoxin. This seems to be the consensus of opinion among physicians whose years of practice and observation extends back to the pre toxin-antitoxin era. Those who have received larger doses of horse serum for prophylactic or therapeutic reasons—as tetanus or diphtheria antitoxin—present a more serious problem. The "horse asthmatic" group is much the more serious of the two but fatal accidents have occurred in both. Park[2] has estimated that one in 20,000 serum injections produces alarming symptoms and one in 50,000 is fatal. In New York one injection in 80,000 has proved fatal. According to MacKenzie and Hanger[11] serum accidents can probably be prevented and the individual desensitized by graduated doses of serum.

When the injection of any serum is contemplated there are certain precautions which should be taken. I will readily grant you that they are time consuming but after you have had experience with one serum accident I think that there will be no difficulty in persuading you to use every possible precaution even though they are known not to be one hundred per cent perfect. I have had such an experience. A positive personal or family history of allergy is a most important warning. However a negative history does not rule out the hypersensitive state of the patient. The conjunctival test of sensitivity using 2 drops of a 1-10 dilution is said by Peshkin[18] to be more sensitive and reliable. The conjunctival test is probably more accurate than the intradermic test but no one criterion is infallible. The intradermic test was negative in 2 out of 8 recently reported fatal cases of serum accidents. Technique of desensitization: Intradermic dose of not more than .05 cc. of a 1-10 dilution of serum is given. It is positive if in ten to twenty minutes, the wheal has enlarged to at least 8-10 millimeters and a zone of erythema has formed around it. Pseudopods are indications of a high degree of sensitivity. In the presence of a history of symptoms from horse or a strongly positive skin test not more than .01 cc. is given subcutaneously. If no untoward symptoms occur, the dose should be doubled every 20 minutes until 1 cc. is given subcutaneously. Then after 20 minutes .1 cc. is given intravenously. At intervals of 20 minutes this dose may be doubled until the required dose is given. If intraspinous medication is indicated, desensitization should be done as above until 10 cc. are tolerated intravenously before a similar dose is given intraspinally. In the less sensitive individual, the desensitizing time may be shortened by more than doubling the preceding dose or by shortening the time between doses. Just how much can be accomplished by this method of desensitization cannot be assured at present. Probably some of the "horse asthmatics" can never be desensitized.

Tuft[12] says that "A careful review of the literature has failed to find anyone who has clearly proven the value of these methods of preventions." Tuft by means of the precipitin reaction has clearly proven that there is little difference in the absorption rate of horse serum administered intramuscularly and subcutaneously. Using 50 cc. of horse serum he found that at the end of one hour there was only a trace in the blood and that the maximum was attained in 15 hours. Absorption was practically complete in 24 hours. The amount remained fairly constant for three or four days, when it began to disappear gradually, so that by the tenth day very little could be detected and at the end of about seventeen days hardly any could be found present. He reasons from this that if desensitization is to be relied upon at all, it must extend over a period of 24 hours. If we accept his results and agree with him that serum reactions are antigen-antibody phenomena, then his conclusion, that desensitization to be effective must extend over a period of at least 24 hours, would be the only logical one.

Insley[13] recently reported the use of tourniquet control in patients who are highly sensitive to pollen extracts. He uses the cuff of a sphygmomanometer and applies between 100 and 120 millimeters of mercury pressure, gradually lowering and raising the pressure. It was

rarely necessary to apply pressure longer than one hour. The method has been successfully used in the administration of antitoxins at the Herman Kiefer Hospital in Detroit. When a patient has been found to be hypersensitive either by history or test intravenous medication should be avoided unless absolutely imperative. As a precautionary measure the serum should be diluted and injected very slowly. Large doses of atropine given 30 minutes before the injection has the sanction of custom for its use. Waldbott[4] advises that all sera be injected into an extremity so that the tourniquet control of absorption can be used as an added factor of safety. When using intramuscular or subcutaneous technique no serum should be injected until the piston of the syringe has first been withdrawn to assure oneself that a vein has not been punctured. When the above precautions have been observed and still symptoms of shock appear, the administration of epinephrine and the application of a tourniquet are the most important therapeutic measures to use.

Dr. Park[2] in answer to an inquiry by Dr. Hudson[14] says: "There is absolutely no danger because of having had previously an immunizing dose of antitoxin. There may, however, be an acceleration of the serum sickness so that a patient may develop a rash within a few minutes rather than a few days after the serum has been injected. All the deaths I know of have come from first injections." He thinks, as does Zingher,[15] that most of the deaths occur in patients with bronchial asthma or status lymphaticus.

Following the injection of a serum there is an interval of from six to twelve days without symptoms and then eruption, fever, adenopathy, arthralgia, edema, and occasionally nausea, vomiting, loose stools, and rarely neuritis. Headache, prostration, and malaise are not unusual. In some cases enlargement of the spleen is evident. Dr. Park[2] states that this interval between injection and reaction may be shortened to a few minutes or hours in individuals who have previously received horse serum. I interpret this statement to mean that patients who have previously had toxin-antitoxin are more liable to serum reactions than those who have not. And furthermore that those reactions are not infrequently of the serum accident type. He has never observed a fatality in this group.

According to MacKenzie and Hanger,[11] the available facts indicate that, following the administration of horse serum, the body cells begin to produce precipitins which remains exclusively intra-cellular for some days. At the end of the incubation period, usually from six to nine days after the serum injection, the concentration of precipitins in the cells is sufficiently high to react with the horse serum still in the circulation and, as a result of this symptoms of serum disease appear. With the continued production of precipitins by the body cells an excess is formed, which passes from the cells into the circulation and it then becomes demonstrable in the patient's serum. As the titer of the precipitin increases, the amount of horse serum remaining in the circulation decreases. In severe serum disease, the titer of precipitin is usually high and there is a rapid disappearance of the horse serum. Hence, those individuals who constitutionally possess the capacity of producing

a high titer of precipitin are apt to have a severe serum disease and an early disappearance of horse serum from the circulation.

The occurrence, intensity, and duration of the serum disease depends upon several factors. The first and most important of those is whether or not the patient has previously received foreign serum parenterally. That the amount of serum administered is a potent factor is shown by the fact that only approximately 10% will react when 1 to 10 cc. of serum is given and from 75 to 100% will react if 100 to 1000 cc. are given. The source and age of the serum have been shown to be of importance. The serum from some horses are known to cause more severe and intense reactions than others. No acceptable explanation has even been given for this often observed fact. It is quite generally known that serum which is aged causes fewer reactions than new. Certain races and certain types of individuals are less susceptible than others. I know that we all must have observed how rarely does a severe serum reaction occur in the member of the negro race. The same has been reported to be true of the full blooded American Indian.

Concerning serum sickness there are certain points of practical importance to us. Does diphtheria toxin-antitoxin cause a higher percentage of serum sickness and if so how can we still immunize the children and avoid this drawback? The first part of that question can be answered by statistics gathered by Gordon and Creswell.[16] Of 1556 consecutive cases reported as diphtheria 283 had received toxin-antitoxin, 90 had had previous serum injections, and 1183 gave no definite history of horse serum injections. The gross incidence of serum sickness varied according to whether the patient had previously had no horse serum, toxin-antitoxin, or other injections of horse serum. 73.5% for the toxin-antitoxin group; 41.1% for the serum sensitized group, and 19.1% in the group presumably not sensitized.

In general the reaction was more severe in the toxin-antitoxin group and less severe in the non-sensitized persons. In the group who had received only one dose of toxin-antitoxin, the percentage of reactions was essentially the same as in the cases who had been sensitized with one larger dose of horse serum. Diphtheria immunization can be accomplished without horse sensitization by using diphtheria toxoid or goat serum toxin-antitoxin.

This opinion that toxin-antitoxin causes increased sensitivity is not shared by Bauer and Wilmer[17] who after extensive studies in the asthma clinics of the Germantown and Presbyterian hospitals of Philadelphia made the following statement: "We are therefore convinced that in the use of toxin-antitoxin mixture properly made and with the protein removed, according to the methods of Park and of Banzhof, no hypersensitivity to horse protein is developed. Further, we are convinced that it is safe and indeed wise to use toxin-antitoxin in asthmatic patients known to be susceptible to diphtheria."

I am sure that most of us feel that serum reactions following scarlet fever antitoxin are more frequent and more severe than following diphtheria and erysipelas antitoxins. A possible explanation for this lies in the larger percentage of scarlet fever patients who have previously had toxin-antitoxin.

In summarizing this rather random review we may say that serum reactions of both serum accident and serum sickness types are much more frequent since the use of toxin-antitoxin and other horse preparations have become more prevalent. It is suggested that the number of these reactions can be very considerably decreased by using diphtheria toxoid or goat serum toxin-antitoxin for diphtheria immunization instead of horse serum toxin-antitoxin. Serum disease is frequent. It is most distressing to patient and family. It is not dangerous to life. There are few permanent complications or sequellae. The course of serum disease tends to be more or less unaltered by medication. The combination of luminal and ephedrine complimented at times by codine and soothing lotions has been found to be fairly satisfactory methods of relief.

Serum accidents are more frequent now than before the use of horse serum became so widespread. They are still relatively infrequent but when they do occur, they are always alarming and not unusually fatal. There are certain measures which intelligently applied will decrease the frequency and severity of the reactions. Nothing we now know will eliminate them entirely.

A positive personal or family history of allergy or a history of having previously received a serum injection or a positive intradermic or conjunctival test should cause one to proceed with the utmost caution. Only in most urgent cases should the serum then be given intravenously. Desensitization should extend over a relatively long period of time. The injection should be made into an extremity after the piston of the syringe has been withdrawn to assure oneself that no vein has been punctured. A tourniquet should be placed proximal to the injection. It should be tightened at the first sign of a reaction. Epinephrine in a syringe should be available for instant use.

When all known precautions have been observed fatalities will still occur. It therefore behooves us all to accord any type of serum therapy the utmost respect.

BIBLIOGRAPHY

1.

2. Park, H. W., Human Hypersensitiveness to Whole Horse serum or Serum Globulins Following Diphtheria Toxin-Antitoxin Injections: Its Importance, J. Immunol 9:17 (Jan.) 1924.

3. Pirquet & Schick., "Die Serumkrankheit," Leipzig (1905).

4. Waldbott, G. L., Detroit. The Prevention of Anaphylactic Shock. Pp. 446, Vol. 96, J. A. M. A. Feb. 6, 1932.

5. Dale, J. Pharmacol. and Exp. Therap., iv (1912-1913) Pp. 167 and 517.

6. Lamson, R. W., Boston. J. A. M. A. April 5, 1924, Vol. 82, Pp. 1091-1098.

7. Hooker, S. B. Human Hypersensitiveness Induced by Very Small Amounts of Horse Serum. J. Immunol 9:7 (Jan.) 1924.

8. Stewart, Chester A., Minneapolis. Serum Sensitization Resulting from Diphtheria Toxin-Antitoxin Administration. J. A. M. A. April 16, 1927, Vol. 98, Pp. 1220-1222.

9. Gatewood, W. E., & C. W. Baldridge, Iowa City, Tissue Hypersensitiveness Following The Administration of Toxin-Antitoxin. J. A. M. A. April 2, 1927, Vol. 88, 1068-1071.

10. Lathrop, Frederic W., Plainfield, N. J. Sensitization to Horse Serum Following Toxin-Antitoxin Injection. J. A. M. A. Vol. 5, 1927, Vol. 89, P. 1602.

11. MacKenzie G., Coöperstown, N. Y. Franklin M. Hanger, New York, Serum Disease and Serum Accidents. J. A. M. A. Jan. 25, 1930, Vol. 94, Pp. 260-265.

12. Fuft, Louis, Philadelphia. J. A. M. A. May 18, 1929, Vol. 92, Pp. 1667-1670.

13. Insley, S. W., Control of Immediate Shock Following Hypodermic Medication—Preliminary Report. J. A. M. A. 94: 765-767, March 15, 1930.

14. Hudson, L. B., Hattiesburg, Miss. Real and Alleged Dangers of the Prevention and Treatment of Diphtheria with Toxin-Antitoxin and Antitoxin. New Orleans M. & S. 79:185-189, Sept. 1926.

15. Zingher. Same as 14.

16. Gordon, J. E. & S. M. Creswell. To What Extent Do Toxin-Antitoxin Mixtures Sensitize to Therapeutic Serum? Herman Kiefer Hospital, Dept. of Health, Detroit, Oct. 6, 1928.

17. Bauer, Edward L., and H. B. Wilmer, Philadelphia, Toxin-Antitoxin Hypersensitivity To Its Protein Content. J. A. M. A. March 27, 1926, Vol. 86, P. 942.

18. Peshkin, M. M. A Dry Pollen Ophthalmic Test in Patients with Hay Fever and Asthma negative to Cutaneous Tests. J. Allergy 3:20-29 Nov. 1931.

Dr. T. M. Watson (Greenville): Mr. Chairman, Ladies and Gentlemen: I have had a great deal of trouble. Dr. Geddie states that he has had a serum accident, so it is needless to say how he feels about it, but to the rest of you who have not had such an experience I will say that it is one of the most serious situations in which a physician finds himself, particularly when he has a fatal serum accident. It will make him wish he had left medicine alone and stayed on the farm.

About a month ago I was called in consultation to see a little boy three years old who had been sick with diphtheria for about eight days. The general condition was quite bad but by no means moribund. Both tonsils were covered with typical diphtheritic membrane. We got a smear and culture and examined the smear which was full of diphtheria bacilli, and then we did an intradermal test with straight antitoxin and waited thirty minutes. There was no reaction whatever; no reddening nor wheal formation and so I proceeded to give fifteen thousand units of diphtheria antitoxin in the deltoid muscle. In just about three minutes the child showed—well, he began to cough a little at first, and then he had a few urticarial wheals around his hips and on his forehead and in just a minute or two more he became quite cyanotic and had a convulsion. I had adrenalin ready in a syringe. The jugular vein stood out prominently and I gave him some in the jugular vein but it had no effect, and just about seven minutes after the antitoxin was given, the child was dead, and I repeat that that is a mighty embarrassing situation.

A second case illustrates the danger of repeated doses of antitoxin in sensitive individuals. This little girl was about the same age as the child before mentioned. She had a malignant diphtheria and her tonsils were covered with membrane and the child was quite sick; the smear positive. I did an intradermal test on her and there was a great big reaction, a great big wheal appeared on her arm immediately half as big as your hand and very indurated, but I called two other physicians

in consultation and we agreed that she had to have an antitoxin as we felt the diphtheria would be fatal, so after explaining the comparative danger of antitoxin and disease to the parents they agreed to have us go ahead and give it, so I gave her ten thousand units in graduated doses over a period of twenty-four hours. She had no reaction whatever until thirty-six hours after the antitoxin was administered, and she had then one of the worst cases of serum sickness I ever witnessed. During the acute stage she developed a choroiditis medium which ruptured and drained a whole lot of thick pus for about two weeks, the diphtheria having cleared up very nicely. Just about three weeks from the onset she developed signs of an acute mastoid (left) and her temperature went up; leukocyte count twenty thousand with extreme tenderness over the mastoid process. She was taken to a hospital in another state where they took another culture of the ear and throat and found it to be positive diphtheria and gave her twenty thousand units of antitoxin. Within two or three minutes she had a reaction very similar to the one described a few moments ago, and in spite of the frequent and repeated doses of adrenalin, died within less than twenty-four hours after the antitoxin was given. About two weeks after her death her little brother developed a nasal diphtheria. I tested his skin with diluted serum. The little girl had scared me up so I diluted it this time and within five minutes he was broken out from head to foot with urticaria and had extreme dyspnea and was very cyanotic and desperately sick just from the fraction of a drop of diluted antitoxin given intraderminally. His was a nasal diphtheria and he was not sick much before I made him sick. (Laughter) So I called my two physicians back in consultation and we agreed that diphtheria antitoxin was no good; not for that kind of diphtheria. (Laughter) Upon looking it up in the literature some fellow reported that he did not use it as a treatment but used it to clear up positive culture in a carrier. He treated the membranes of the nose with fifty per cent silver nitrate. I didn't quite have the nerve to do that but used twenty per cent silver nitrate in the nose every day for four or five days and after a week the symptoms were cleared and the boy was apparently well and the culture negative. It has now been about four months and so far I cannot find where the disease left any signs, but I am sure if we had given that in one or graduated doses this child would have now been in Abraham's bosom.

My time is up so I will have to stop. Now all of these cases had toxin-antitoxin last year.

Chairman Ravenal: I must apologize for stopping the gentleman so unceremoniously, but the time has been exceeded. We will have a general discussion and I will ask the gentlemen to come forward where the reporter can hear you and give him your name and the city from which you hail.

Dr. Jas. H. McNeill (North Wilkesboro): I would like to ask the gentleman his opinion on the use of calcium gluconate in serum sickness.

Dr. C. A. Street (Winston-Salem): I want to ask a question. I have seen some of these cases and had some this year. I had a number of children who had toxin-antitoxin and developed diphtheria. I remember one little girl who had a temperature of about one hundred and

one with a slight membrane of the throat—just a little on one tonsil. She was not sick at all, but she had a positive culture. The nurse made the culture at school. I hated to give the antitoxin. I really didn't think I should give it, but it seemed to have been the religion to give them diphtheria antitoxin whenever they had a positive culture. I am sure she would have done better if left alone. I gave it though and waited about forty minutes. There was just a slight wheal and I went back and gave the full dose. Three or four days later I was called back about two o'clock in the morning because she was itching. I gave adrenalin and she got over that but the next day she started vomiting and just vomited and vomited until the next night when I was called again. When I got there she was stiff and really in a bad way. I gave magnesium sulphate. If I had to do it over I wouldn't give antitoxin in such a case. Another thing which I have thought of a great deal is this: I always hate to give a child diphtheria antitoxin if it has had the disease five or six days. I have wondered how much good it does. I doubt that it does very much good. Of course I have done it, but if you will read on the subject I doubt that you will find statistics to show where it makes much difference when given after the fifth day.

Dr. W. Houston Moore (Wilmington): I would like to ask the doctor if he can explain why we are having so many more cases of serum sickness and serum accidents than we did in former years. Of course we have always had a good deal of it, but it seems to me that it occurs many many more times now than a few years ago and there must be some explanation for it.

Dr. N. C. Daniel (Oxford): During the last ten years I have had the opportunity of observing over seven hundred children in an institution. I have a routine of vaccinating all of them on admission. One year I gave them a series of three vaccinations. During that time I never had a case of diphtheria. I had a consultation with another physician who is in the hall now in a case that was diagnosed laryngeal diphtheria.

Dr. J. R. Ashe (Charlotte): I think the benefits we get here lead us to the suggestion to get away from toxin-antitoxin. There is no doubt but that many of our children are more sensitive to it than children used to be. I think that is largely due to the fact that a great many of them have had toxin-antitoxin. With five doses of toxin-antitoxin we can immunize about sixty or seventy per cent, whereas with toxoid we eliminate ninety-eight per cent approximately with two or three doses.

Dr. N. A. Fox (Greensboro); (Guilford College): Since we know that adrenalin is our only hope in these severe reactions, will it not be advisable to have it ready and use it in all serum injections either before it is made or immediately thereafter? Would that be advisable or justifiable?

Dr. Kenneth B. Geddie (Closing): In answer to Dr. McNeill about calcium gluconate in the treatment of serum diseases. Although calcium has been used, results have been somewhat questionable.

As to Dr. Street's question about giving diphtheria antitoxin to patients who have been sick with diphtheria for five or six days, there is

very little difference in the mortality rate with no treatment at all and with the antitoxin if the child has been sick over five days. I shall give it, however. We do have a great deal more reaction now than we did formerly, and I think the reason that we have more reactions now is just the reason stated in the paper. That is, because more horse serum is now being given than in former years. That is the main point, and I think if there is anything of value in this paper it is to get away from horse serum toxin-antitoxin and use goat serum toxin-antitoxin, or preferably diphtheria toxoid. With two doses of diphtheria toxoid you get essentially the same percentage of negative in the Schick test as you do with three of toxin-antitoxin, and three doses of diphtheria toxoid have been shown to be considerably more potent than five doses of diphtheria toxin-antitoxin, and not only that, but you get your immunization within six to eight weeks rather than three to four months. The question of giving adrenalin with dose of foreign serum administered has been considered. It is sometimes given by some people mixed with the toxin-antitoxin. It seems to me that if you give the dose in an extremity and have a tourniquet to control it and your adrenalin to give intravenously rather than subcutaneously, you might get better results that way than mixed with the antitoxin.

Dr. C. A. Street (Winston-Salem): I have seen a number of cases of diphtheria this year in children who had had toxin-antitoxin.

One girl with slight fever and sore throat had a positive culture, with only a little membrane on one tonsil. She was not ill and I did not wish to give her antitoxin. I really did not think she needed it. But since it has become a tradition to give all children with positive cultures antitoxin I gave it, much to my sorrow later. I gave her a test dose and waited about forty minutes. There was only a small wheal, so I gave the full dose. Three or four days later I was called in the early morning. She had a very severe rash with intense itching. This was relieved with adrenalin. During the day she began vomiting and vomited almost continuously, being unable to retain anything, until early the next morning I was called again. At this time she had marked carpopedal spasm and other symptoms of a rather severe alkalosis. Magnesium sulphate relieved this condition and she had no more trouble. I do not think I should have given antitoxin in this case and I am quite sure the child suffered more from the serum reaction than she would have had her diphtheria been left untreated. But I did not dare take the risk in spite of the probability of a reaction. I also wonder about giving antitoxin late in the course of the disease. We know that the mortality rate increases with every day's delay in giving antitoxin. After the fifth or sixth day of the disease I often doubt if the good to be expected from antitoxin outweighs the discomfort and danger of the serum. I always give antitoxin in these cases, but should we give it?

THE BODY MECHANICS OF THE CHILD

By A. R. Shands, Jr., M.D., Durham, North Carolina
From the Department of Orthopedic Surgery
Duke University Medical School

The essential aspects of the subject selected for this orthopedic presentation have changed very little in the last two decades. It is a problem to which the average medical practitioner has given little thought and one which should be of utmost importance to those of us examining and treating the growing child.

Body mechanics, as applied to the child, is made up of several distinct parts. The most important of these is the posture or body carriage. "It has been said that correct posture is that position of the body in which the organs function most efficiently. When the body is correctly held and used, it is both efficient and graceful. In poor posture, the body is like a complicated machine in which several cogs have slipped. The machine may still go, but it does not go smoothly; the wear and tear is greater and the power is less." There are many complications of poor posture in children where slipping cogs may lead to such disturbances as abdominal pains, poor appetite, chronic constipation, headaches, etc., which cause the pediatrician concern and worry. Chronic ailments such as these, not due to infections, deficiency diseases, or toxins but to continued habits of wrong living and maladjustments of the individual body to its environment have not been given the proper attention in our medical teaching.

The types of poor posture have been enumerated as five in number:

1. Stooped shoulders with a forward projecting head.
2. The round back, with a posterior upper dorsal curve or kyphosis.
3. The hollow back or "sway back" type.
4. The round hollow back type, which is the most common.
5. The flat back type.

The causes or etiological factors behind poor posture include such conditions as:

First; muscular weakness, which may be due to: (1) rapid growth and development, the bones growing faster than the muscles. (2) improper nourishment, where the child is receiving food containing nutritional elements in an improper balance with few of the necessary vitamins. (3) an illness, and (4) adenoids causing improper breathing. Secondly are found the school children who develop poor posture as a result of faulty positions while sitting at desks, etc. Thirdly are those due to defective eyesight and hearing, and fourth, those children who develop poor posture as result of clothing being too tight or too heavy. Often times straps or suspenders constantly worn over a child's shoulders will result in a postural defect.

The diagnosis of these conditions is made entirely from the physical appearance of the patient. The four essentials of good bodily posture, which are lacking in these children with poor body carriage may be given as follows: First, a back with normal curves; second, a lower abdomen, which is held in and flat; third, a chest held up and forward; and fourth, the head held up and the chin in. In good posture, a straight line can be

drawn through the shoulders, hips and ankles. In poor posture, the shoulders are back of this line and the hips are ahead of this line.

In the pre-school age, between 2 years and 6 years, the whole problem of posture is most often overlooked, at a time of life when it is most important. During this period any form of treatment has to be taken up as a game, in order to obtain the coöperation of the child. First, there must be a removal of any pre-disposing factors that lead to poor posture. Then the problem of good hygiene must be gone into with the patient obtaining the proper amount of fresh air, sunshine and an adequate food supply to take care of the demands of the body. The mental attitude is always most important. If the child is not coöperating with the doctor or teacher, all efforts will be useless. The most important part of the whole treatment is the development of the musculature to maintain the posture, once it has been attained. Posture exercises designed to strengthen the abdominal and back muscles and to develop the chest through proper breathing should be familiar to every doctor, especially those doing pediatrics. The following is a list of exercises which may be given to the parents of children, to carry out at home:

POSTURE EXERCISES

1. Lying—hands at back of neck—chin in—back flat—breathe deeply—raising chest hold chest up and exhale by drawing abdomen in and up.
2. Same position—knees bent—flatten back against floor by pulling abdominal muscles in and up—not a breathing exercise.
3. Same position—bend one knee—raise other leg straight—lower slowly—keeping abdominal muscles pulled in and back flat.
4. Sitting tall—back and abdomen flat—hands on hips—breathe in, raise chest. Keep chest up and exhale by flattening upper part of abdomen.
5. Hands on head—pull whole abdomen in and up to flatten it. Relax and repeat.
6. Sitting tall—back and abdomen flat—hands on hips—trunk forward bend—straighten slowly.
7. Same position—bend right and left.
8. Same position—twist right and left.
9. Hands on top of head—stretch ribs on one side upward and outward. Relax—alternate sides.

GOOD STANDING POSITION

Feet straight ahead—weight on balls of feet—abdomen pulled in—back flat—neck up and back—chin in—stretch body tall.

10. Good standing position—heels four inches from wall—hips, shoulders, and head touching—flatten back against wall by drawing abdomen in and up. Not a breathing exercise.
11. Good standing position—hands on hips—pull abdomen in—head up—stretch body tall—breathe deep—raising chest—exhale by drawing abdomen in and up.
12. Good standing position—raising arms forward upward—rise on toes—stretch tall—breathe deep—lower arms sideward downward—lower heels—exhale.

Braces should only be used as a supplementary measure in the treatment of poor posture. The old idea of putting shoulder braces on for round shoulders and stooped shoulders has long been discarded. The correct thing is to build up the muscle tone and muscle strength through exercises in order to hold the correct posture, with abdomen flat, chest up and the head erect. This can only be done over a long period of time, with good hard work on the part of the patient. The necessity of the coöperation of the patient cannot be too strongly emphasized. Nothing can be done unless the patient is willing to really work. The physical training taken up in the school should be devoted to the development of the trunk muscles. These occupy the key position to good posture, which muscles in daily living are not properly brought into action. It is always important to have certain rest periods for school children, so that they do not become too fatigued. This often may be more beneficial than persistent exercises. Lying exercises should always precede sitting or standing exercises, especially where muscle tone is weak. Emphasis should be put on correct sitting in school, this being on the tuberosities of the ischia and not on the mid-thighs. Incorrect sitting gives constant strain on the lumbosacral and sacroiliac joints, with a resulting pain and disability and posture defects. Important too is the teaching of proper posture to adults in charge of the child. Too often the call of "shoulders back" has caused the exaggerated forcing back of shoulders with an increased lumbar curve. From this improper and uncomfortable position the child soon slumps into an even worse round hollow back type.—"Abdomen in, chest up, back high" would make a better slogan.

All children and adults have been grouped by Goldthwaite into the following classifications, according to types of physique:

1. The heavy or herbivorous type.
2. The slender or carnivorous type, which is the congenital visceroptotic individual. This constitutes most of the poor posture amongst the school children. It has been said that 60% fall within this type. It is associated with poor musculature, poor nutrition, poor teeth, a prominent abdomen, and ptosis.
3. Intermediate type.

In the development of the musculature with exercises, these should be made suitable for all the three types of physique:

The long thin type of child who tends to increase the curve of his lumbar spine with a forward inclination of the pelvis, should have exercises to flatten the lumbar spine and to tilt the pelvis backward.

Then the broad heavy-set child whose back tilts posteriorly at the dorso-lumbar junction localizes his discomfort and pain in the dorsal region of the spine. This child needs exercises designed at first to stretch the ribs and through this procedure to loosen up the dorsal spine. The exercises are taken to bring the back up to where it belongs. If the exercises are given to a group of children, each child does not necessarily have to be given individual special exercises, but the exercises given for the whole group should incorporate all the exercises necessary for the three types. After the child has taken the fundamental exercises sufficiently long, this child will acquire through continued repetition the

ability to maintain subconsciously a good body carriage. When this point has been reached good posture is a habit.

In the discussion of the body mechanics of a child, the problem of the foot is most important. The three types of feet, according to Drew, which should be considered are, first: the weak foot. This is the most frequent in children and is due to muscular weakness. Great many babies, when they first start to walk and have not developed strong tibial muscles, which maintain the long arch, will show a very marked tendency toward a flattening of the long arch upon standing and a pronation of the foot. As the child grows older, that is comes in the age period from three to five years, the arch gradually builds up and the foot straightens out. During this period of early walking the parents of the child become extremely alarmed for fear the child is going to grow up with flat feet. Very few of these fears turn into realities, because as the child grows older the leg muscles usually develop and the feet assume a normal shape.

The second large group of cases are those falling in the group of the strained foot, where the muscles become relaxed with a strain on the ligaments. An inward rolling of the foot takes place and may be associated with pain. This is not a common finding in children. It may be present, however, if the child is unusually stout and has excess weight.

The third group is that of the flat-foot which is the end stage of the weak foot or strained foot. Sometimes this type is found in children, due to a congenital weakness of muscles or to congenital malformation through the bones of the feet.

It has been said that the principal causes of foot difficulties in children, after they pass about the third or fourth year, are: hard pavements, considerable jumping on the part of a child, and roller skating. This latter allows the foot to roll in, and certainly is harmful on the arches of the feet if the muscles are not good and strong.

The pediatrician and orthopedist are being constantly asked what to do for weak feet, and flat feet, in children. The treatment should be divided into two definite age periods. First; that period up to about the fifth year, and second; that period over the fifth year. In the early period, the child is too young to coöperate on exercises to develop the musculature and during this time the following things may be done to support the feet: Proper shoes; special Thomas, or orthopedic heels, elevating on the outside of the shoe the inner border of the heel, or the heel and sole, and small felt leather arch supports to be applied inside the shoe. During the second period, of over five years, the same suggestions as to treatment may be carried out, and in addition the child should be started on foot exercises designed to develop and strengthen the muscles which support the arches of the feet. The following is a list of exercises suggested:

CORRECTIVE EXERCISES FOR PAINFUL AND FLAT FEET

Position: Sitting or lying.

1. Flex and relax toes.
2. Spread and relax toes.
3. (If sitting, have legs crossed) Turn feet down, in, up, and relax.

Sitting:

1. Feet parallel, place towel on floor beneath them and gather towel into heap under feet by grasping with toes.

2. Feet parallel about ten inches apart, gather towel in heap between them by grasping with toes and turning toes in.

3. Pick up marbles with the toes and place in a box placed directly between heels.

4. With feet parallel, toes, heels and other borders of the feet firmly on the floor, raise inner borders to make a dome.

Standing:

1. Feet parallel, slightly apart. Force feet apart without really letting them move apart, thus throwing the weight on their outer borders. Let them roll in slowly, but not all the way.

2. Walk "toed-in," placing heels down first, directly in front of toes of other foot, weight on outer border of foot.

3. Stand on book with toes and ball of foot over the edge, curl toes down.

The question is constantly asked, what is the proper shoe for a child? The proper shoe is one which supports the foot in its normal position when at rest, and allows normal motion to take place during activity. The following are the principal requisites of a good shoe:

1. A straight inner border.
2. A wide shank, usually flexible.
3. A roomy upper part of the foreshoe.
4. Medium, low, or broad heel.
5. Plenty of room for the toes.
6. Light in weight.
7. Preferably a low cut shoe.

If the arches and ankles are unusually weak a high cut shoe may be the best. The question is also asked, should the child be allowed to go barefooted in the summer? The answer to this should depend entirely on how marked the relaxation of the arches is. If the child is suffering pain and there is considerable relaxation, shoes should be worn at all times. Otherwise, it may be perfectly safe for a few weeks during the summer months to allow the child to go without shoes.

In the body mechanics of the child, the problem of the knees is one which deserves some attention. Knock-knees and bow-legs are very commonly seen in young children. Again the parents are very much concerned about the appearance of the child and wish to have something done. An X-ray examination should always be made to show the condition of the epiphyses. If this deformity is due to rickets or any other deficiency disease, it stands to reason that this is of primary importance and should be emphasized in treatment. The author is firmly opposed to the use of braces, which have been popular in the past, to correct bow-legs and knock-knees. It is not believed that these are of much benefit and they certainly put the child to considerable discomfort and prevent the normal development of the musculature. Fortunately knock-knees and bow-legs are very seldom accompanied with pain. A great many of the conditions are of very mild character and the child outgrows the deformity. It is believed, however, always best when the parents bring

these children to be examined to make a careful examination of the feet and other parts of the body. Most knock-knees are the accompaniment of relaxation of the long arches. Applying proper shoes and building up the inner border of the shoes will give a counterthrust carried up to the knees, which has a tendency to correct the valgus deformities. In the case of bow-legs, the same treatment should be applied, but the elevation should be put on the outer border of the shoes instead of on the inner border. This elevation should be from 1/8 to 1/4 inches in height.

In conclusion I wish to thank the chairman for inviting me to address your section, and hope that in this sketchy review of body mechanics primarily as applied to the child, a few of the old points have been emphasized strongly enough to have made the presentation worth while.

REFERENCES

1. Drew, Lillian Curtis. "Individual Gymnastics." Lea & Febiger, Philadelphia. 1929.

2. Thomas, Leah C. "Body Mechanics and Health." Houghton Mifflin Company. Riverside Press, Cambridge, Mass. 1929.

3. Posture Bulletin. U. S. Department of Labor. Children's Bureau, Washington, D. C.

Dr. W. F. Cole (Greensboro): Mr. Chairman, Members of the Pediatric Section: We are certainly very happy indeed to have Dr. Shands as a member of our state society. He is an excellent gentleman, and you will always find him on the right side. It is a great pleasure to me that he has discussed with you the subject of posture and the effects of bad posture as well as the effects of good posture. Now, the picture shown to you illustrate posture, and you certainly know the effects of bad posture as well as we orthopedic surgeons. The only question is whether or not you are going to recognize it and look after it better than we have in the past. It seems to me that the question of posture in North Carolina has not received the serious consideration of which it is worthy and should receive. There is no question in the world but that when we come to deal with the undernourished child and handle that child there is always more than one factor present in his condition, and if you fail to recognize the question of posture in this child you are ofttimes going to be defeated in your attempts to regain the normal symmetry the child is entitled to have. There are three things to me which stand out very prominently in the question of regaining the symmetry, or the padding, which a child should have. There is the question of rest, food, and diet and the correction of mechanical defects. Now the most important of all of these to me is the question of relieving the strain. Strain takes more from the child mentally and physically than does the question of food. I do not mean to at all insinuate that the question of food is not of great importance, but we do find cases where we get them in bed, take them off their feet, and relieve the strain and they improve and gain weight under the same foods they had before where they failed to gain weight otherwise. Dr. Silver said "Every individual who is not symmetrically formed had some condition which inhibited assimilation properly." His idea was that many cases of

undernourishment was due to absorption from tuberculous glands of the Hilum of the lung, but when you find one of these conditions, there are others, many others, and poor posture is one of those conditions that takes away and prevents the symmetry of the body. You can take a child, not all but many of them, and give it the correct posture treatment and it will develop and regain weight which it would not under any other treatment. Diet is of course of great importance and prevents systemic conditions. I do not want it to be understood that I do not appreciate the importance of that. These postural conditions in adult life, particularly in women are of great importance. These were shown by Dr. Shands in the pictures where increased lordosis, protuberance of the abdomen, and bad positions of the head and shoulders existed. This throws the strain on the back of the adults and especially of the women, and the best treatment is stretching and putting a plaster jacket on the individual to hold them in that position.

The question of postural defects and postural deformities: The other night I was looking at the picture show of Tarzan, I was impressed with the symmetry of the limbs and back of the natives. They are built as pretty as anything could be built. They lived in the open and exercised and got the benefit of that. I began to think of our children. Our children are confined in schools and we so often speak of the fact that in the past they did not have proper desks, that being the cause of their physical defects. The reason why they have these physical defects is not because of the desks but because of the weariness, the long hours, fatigue. Now fatigue of muscles and mental condition or fatigue in any way is the thing that causes our postural defects that we have to correct. Fatigue may be caused by absorption of toxins, tonsils, adenoids, and conditions similar to that, but when they get the proper correction, when they get the proper exercises, they can come out of that by the correction of other physical defects. Now the question is: Who is to give the proper exercises? These exercises are very important. It is important that a child or adult or anyone else should be given the type of exercises they should have. We have two types, one of which we speak of as symmetrical and the other is asymmetrical. The asymmetrical exercises are for the purpose of developing one set of muscle, for instance, in flat-fleet we develop the muscles on the inside of the foot so the muscle will pull the foot in a position to cast the body weight on the outside of the foot, which is normal. We have all had a good many of these cases and especially of the foot. Now when the foot is out of alignment with the body it throws the whole machine out of alignment and that has to be corrected. Among the several cases in which he have considered or studied the effects of the feet upon nutrition, we found in one case a gain of fourteen pounds. That is not common. There is a relationship between strain and nutrition that I know nothing about but you nutritionists do. There is a relationship between strain and assimilation.

Dr. Thomas J. Sasser (Charlotte): As School Physician of the Charlotte City Schools for a period of three years it was my duty to make many physical examinations of children presenting postural defects. These were usually first noticed by the teacher and the nurses and referred for examination to determine if possible the cause and the possibility of bringing about improvement. In many instances there was nothing found upon examination other than defective nutrition with lack of muscular tone. The usual history obtained is that these children become easily tired out. Much was done in the way of providing proper seating arrangements also seeing to it that class rooms were properly lighted but in addition to this with the coöperation of the physical educational department a number of classes were formed to provide special attention with the exercise that would produce most beneficial results towards the correction of the postural defects. Dr. Cole has stated that in many cases long hours in school may be the cause of fatigue rather than physical defects and I heartily agree with him about this point.

Some one has a fertile field for getting in some good work and rather than leave it to those insufficiently trained it would be well for the medical man dealing with children to give more of his time and more study to this type of work. By correcting defects of posture we often are doing the best thing to prevent other serious physical defects.

Dr. Shands (closing): I do think it is a subject we need more consideration of and more thought of. It is the inclination of the average physician to turn over the posture work to the school teacher or gymnasium teacher and not believe that it comes within his field of supervision, but there are lots of cases treated and seen I know every day that could be improved and helped as individuals if more attention was given to the posture. I thank you. (Applause)

INTRACRANIAL HEMORRHAGE

By Dr. G. W. Kutscher, Jr., Asheville

Any condition appearing as frequently as does intracranial hemorrhage in the 120,000 annual fatal deaths in the United States not only merits but demands the attention of the obstetrician and pediatrician. It has been my privilege to study both clinically and at the autopsy table, over 200 cases of this condition and upon that study is this paper based. Statistics prove little in medicine and will be avoided throughout this paper. Yet it is safe to say that intracranial hemorrhage heads the list of neonatal deaths.

In 1910 Benecke devised an autopsy technique for opening the skull of an infant which disclosed the falx and tentorium intact, and which revealed when present, the lacerations of those membranes and the resultant hemorrhages. Since then the knowledge acquired has made it possible to diagnose and institute treatment earlier than formerly. Moreover early treatment frequently can save many of these infants from sudden or certain death as well as the living deaths of the spastic and flaccid paraplegics, hydrocephalics, mental deficients and some of the epileptics.

The etiologic phase of this subject has been purposely omitted. The obstetrician is the proper source of that information! He is by no means always responsible for this condition of injury; many cases being absolutely beyond his control. In the past he has been unjustly blamed, but today we know better. Also time will not permit the inclusion and discussion of the many causes of intracranial hemorrhage.

Just a word in regard to the pathological findings. The term intracranial hemorrhage must include brain tissue injury as well as hemorrhage into the subarachnoid space from injury to the cerebral appendages. The falx cerebri, the membrane which divides the two cerebral hemispheres and the tentorium which separates the cerebrum from the cerebellum, especially the latter are the tissues most frequently injured. In severe lacerations the Bein of Galen is ruptured causing sudden death. In the milder lacerations of the falx and tentorium, hemorrhage from the smaller veins results and the symptoms are delayed. It is the irritation and hemorrhagic exudate which causes the increased cerebrospinal fluid pressure. The increased pressure and not the hemorrhage causes the symptoms and death.

While no accurate method has yet been devised to determine the amount of hemorrhage that takes place, yet the symptoms observed do present a marked difference between the acute sudden severe attack and the milder delayed form. To simplify the understanding of this condition I have chosen to discuss it under two headings, (1) the massive type of hemorrhage and (2) the slowly progressive type of hemorrhage, according to the time of onset and the apparent severity of the lesion.

MASSIVE TYPE

Following a difficult delivery whether instrumental or spontaneous, many of these cases present symptoms of severe intracranial injury at birth. They are readily recognized and demand immediate attention to save life. Deep cyanosis of the head and body is the first symptom noticed. If pallor instead is present it indicates shock. This is usually followed by cyanosis. The heart beat is plainly visible in the chest wall and the pulse is strong. Despite this, resuscitation is difficult or impossible. Of all types of asphyxia neonatorum, these are the most difficult to resuscitate. When respiration does become spontaneous it is jerky and remains so for hours. Marked flaccidity is present. These infants present the appearance of being "completely knocked out." The cry is feeble. Cyanosis is the last of the above mentioned symptoms to correct itself. As these infants frequently die suddenly at any time following resuscitation, they must be watched constantly day and night for return of symptoms, especially cyanosis. *They are never out of danger.* Treatment of this type must be instituted at once for delay spells but one thing—death.

SLOWLY PROGRESSIVE TYPE

In contrast to the severe sudden onset of the massive type with its extensive hemorrhage, is the slowly progressive type. The onset of symptoms may occur within a few hours after birth, but is usually delayed until the end of the first twenty-four to thirty-six hours of life. I have observed one case in which the symptoms were not manifest until

the seventh day of life. While mild at first, the infant's condition may quickly become one of the desperate urgency. The delay in appearance of symptoms is accounted for by the oozing nature of the hemorrhage and the gradual increase of pressure.

This type occurs more frequently than the massive type and is held responsible for most of the resultant spastic paraplegias. Greater diagnostic acumen is required to make an early and perhaps life-saving diagnosis. The characteristic cry, or the cyanosis, or other frequent symptoms may be absent, but all of these cases present some diagnostic symptom. To emphasize the value of associated symptoms, I shall discuss each of them in detail. The order of discussion has no significance as any symptom may inaugurate the onset of the disease.

CRY

The pitch of the hydrocephalic cry most closely simulates the characteristic cry of these cases and yet it is not identical. While it may be normal at birth, it quickly changes to a high pitched, sharp, piercing intermittent shriek. The shriek becomes exaggerated and more persistent until coma ensues, when it ceases. Short naps may intervene, the infant awakening, crying for a few moments and then resuming its sleep. This feature suggests that sharp pain causes the cry. Any observant nurse will call your attenton to the peculiar type of cry of these babies.

Another variety is the incessant plaintive whine—not the loud shrieking pain cry, but as someone has said "these babies are constant complainers.'

Both types of crying are increased by handling, especially when the babies are being induced to take nourishment.

CYANOSIS

In these milder cases, cyanotic attacks are intermittent, increasing in severity and duration as the pressure rises. At first the face alone may be cyanosed, but the body gradually becomes involved. Cyanosis is influenced by crying, handling, and is present during convulsive seizures.

Intermittent cyanosis is part of a vicious circle and is produced somewhat in this manner. The increased cerebro-spinal-fluid-pressure causes an anemia of the medulla. This anemia, by stimulation of the vasomotor center calls for an increase in the blood pressure. In the medulla, the increased blood pressure causes a local congestion with resultant internal pressure and diminished blood supply. This reduction in blood supply acts as a depressant to the respiratory center. As respiration decreased, cyanosis appears. Following this the vasomotor center becomes exhausted, the blood pressure falls, and the congestion of the medulla abates. The respiratory center is then again bathed in blood, this time containing an excess CO_2 content which stimulates respiration. Cyanosis disappears and frequently a flush of the skin surface results. When the medulla again becomes congested as above the cycle is repeated. Thus is intermittent cyanosis explained by Glaser.

NERVOUSNESS

These infants react out of all proportion to external stimulation, whether as newly borns, they are able to hear or not. Slamming the

door of the nursery shows their nervous irritability whether they are asleep or awake. The noise of a window shade accidentally recoiling threw one child into a convulsion. A favorite test I have used to bring out this nervous irritability before it is spontaneously manifested is as follows:

Place the child on its back on a flat top table. Strike the table top firmly with the open hand. The child will immediately respond by throwing its hands above the head, the spread fingers and toes will demonstrate a marked tremor and the legs will be extended. Some of these children will react similarly when their bassinets are bumped. This reaction is an important diagnostic sign.

Convulsive seizures following a difficult delivery, whether instrumental or spontaneous, are invariably due to intracranial hemorrhage. Early treatment should prevent convulsions in the milder cases; when delayed until convulsions appear, it is usually too late. Convulsions in the slowly progressive type appear late, practically all other signs having appeared previously. I have seen very few cases recover following severe convulsions. At the onset a convulsion may be localized, as in Jacksonian Epilepsy; or it may be generalized as in any other infantile convulsion. It is accompanied by cyanosis. Muscular twitchings of the face, hands, feet or any other part of the body may develop. The site of the leision or pressure cannot be determined from the convulsion. Retraction of the head and arching of the back as in meningitis appear in advanced cases.

NURSING AND VOMITING

Some normal newly borns have difficulty in learning to nurse; intracranial hemorrhage cases present a real problem when it comes to supplying them with nourishment. They nurse poorly, if at all, and frequently proceed to vomit what they have taken by their own efforts, or at the hands of the nurse who tube-feeds them. The absence of the lip reflex is said to account for their being poor nursers. Swallowing seems difficult and regurgitation is frequent. I have observed projectile vomiting in a few cases. Repeating the feeding has no beneficial effect on food retention in many instances. Difficulty in nursing and vomiting may also be delayed. Some of these babies will nurse and retain their food normally for a few days, then refuse to nurse and begin to vomit.

MISCELLANEOUS

Dehydration fever usually develops at the point of greatest weight loss. Fever prior to that time in the absence of infection is usually a fairly good sign of intracranial hemorrhage. Rapid loss of weight is another indication. Sleep is abnormal, these infants being wakeful and restless. Coma when it develops is usually a fatal sign. The respiratory rhythm remains irregular for days despite treatment. The fontanel bulges in certain types of hemorrhage; but bulging fontanel is by no means a constant diagnostic feature.

Tonicity is variable. During convulsive seizures the child becomes spastic; otherwise it may be quite flaccid. Paralysis of the arms and legs does occur and usually remains. Nystagmus may be indicative but

is by no means diagnostic. Changes in the optic discs are not persistent in these cases, nor are retinal hemorrhages regularly found as might be expected.

CEREBRO-SPINAL FLUID

Coming then to the last and most valuable of all signs, the cerebro-spinal fluid reveals the most important data of all. An increase in its pressure may be the only prominent sign present. The normal pressure is 6 mm. Hg. Anything above 10 mm. is certainly pathologic. I have observed pressure as high as 40 mm. and as low as 4 mm. In these cases the usual finding is a pressure around 18-24 mm. Hg.

The color of the fluid is usually bloody. It may however be clear and colorless, due to an encapsulated hemorrhage. Faulty technique in obtaining the fluid may also account for the bloody color. This may be determined by immediately centrifuging the fluid for twenty minutes. If the supernatant fluid is clear and colorless, the bloody color was due to the technique; if Xanthochromic (yellow), the bloody color is due to hemorrhage. Xanthochromic fluid under pressure is the most pathognomonic sign of intracranial hemorrhage.

TREATMENT

In the massive type the immediate relief of increased pressure by spinal puncture is imperative. At times resuscitation is possible only after the pressure is reduced; so sudden is the response to treatment. In resuscitation of this type the use of only the mildest of bodily manipulations is indicated and permissible. Rough handling, inverting the child's head, strong slapping, acutely flexing the child's body, etc., must be avoided, for such procedures increase the bleeding.

In intracranial hemorrhage the spinal puncture becomes a diagnostic as well as a therapeutic measure. Either lumbar or cistern tap may be used. I believe the cistern route has definite advantages over the lumbar and is the method of choice for both diagnosis and relief of pressure. The spinal manometer should be used to determine the height of pressure and to regulate the amount of fluid withdrawn. Reducing the pressure by half, or, if not above 20 mm., to normal, is advisable. This should be repeated every eight to twenty-four hours until the fluid returns clear and the pressure remains normal.

For its coagulant value, whole blood from the father should be injected into the buttocks, using 20 cc. doses. Many obstetricians give blood in this manner as a prophylactic measure after every difficult delivery. Intraperitoneal injections can be used for more rapid absorption. The coagulation and bleeding times in the newly born are deceptive, so it is safer to disregard them and inject the blood. In severe cases several injections at twenty-four hour intervals may be necessary.

Absolute rest for these babies is required to avoid increasing the pressure and releasing further hemorrhage. They must not be lifted from their cribs. Soiled clothing is changed and feeding is done without moving the infant. Bathing calls for too much motion and should be postponed. Nourishment through a Breck feeder should be tried. That failing tube feeding should be instituted. Breast milk is of course preferable to a formula. Fluids must be forced by whatever route seems

indicated. Oxygen for cyanosis and chloral and bromides for convulsions are only palliative measures. They can be used in severe cases, but are seldom necessary when the pressure is kept near normal level.

The Drinker respirator, the Henderson apparatus for CO_2 and oxygen, the DeLee respirator, and mouth-to-mouth insufflation are all of proven value; but the mouth-to-mouth insufflation apparatus is always at hand whether the operator be in the hospital or private home.

When closer coöperation between obstetrician and pediatrician at every birth is consummated many of these cases will be saved. The obstetrician's mind is occupied with the mother's safety. As a result some of the infantile cases are naturally overlooked. It falls to the pediatrician to recognize this condition and institute treatment if it appears that the infant's life is in jeopardy and the obstetrician's time is wholly taken up with the care of the mother. When this coöperation is carried out, the neurologist will seldom be called upon later to tell the parents the truth, which the obstetrician and pediatrician dreads to tell them.

Dr. J. Buren Sidbury (Wilmington): I want to thank the doctor for his excellent paper. I think he has covered the field very well indeed and I agree with everything he has said, but I simply want to bring out a few points to remind ourselves that there are other men who will not totally agree with his line of treatment. For instance, Dr. Grulee, of Chicago, is absolutely opposed to lumbar puncture in intracranial hemorrhage of the new born. He contends that the hemorrhage has already occurred before you see the baby and the baby will be better off if we leave him alone. This may be true in the majority of cases and if we knew what cases were going to be paralytics or cases of Little's disease I would thoroughly agree with him. I saw my first case of intracranial hemorrhage of the new born in 1918. The baby was five days old and looked as if he had gone through the war. He had a double cephalematoma and a number of scars from pressure of forceps. The mother had eclampsia and the baby's life was not considered at all in the delivery. This child was treated by repeated lumbar punctures. Lumbar punctures were done every twelve to eighteen to twenty-four hours for four days and this child made a complete recovery and is now thirteen years of age. Last year he led his class in Grammar School at Kinston, N. C. I think this is simply an illustration of what may happen in the severe cases. The first puncture showed one ounce of bright red blood. Each succeeding puncture showed improvement. If we knew they were going to be idiots, I for one, would be glad to let them alone and hope that they would die, although too often they do not die but live to be a constant care to their parents and the state. Since we do not know what the outcome will be, and there is no way we can know, I think the child should be given the advantage of the doubt.

When an infant or new born child does not do right, does not do what the obstetrician expects of him, and doesn't nurse when he should, or has convulsions, or, in other words, does anything out of the ordinary, a lumbar puncture is indicated. When bloody spinal fluid is obtained, repeated drainage is indicated until the spinal fluid is clear of blood. I think a lot of these youngsters who don't do as they should after birth

have edema of the brain. They do not have intracranial hemorrhages at all. Lumbar puncture relieves intracranial pressure and the edema subsides. I have seen many of those cases receive a lumbar puncture and immediately start to nursing after it was done. They have responded to treatment and I believe the child has been helped along in its normality.

Dr. Sharpe reports ten per cent in his series showing intracranial hemorrhage; Dr. Roberts of Atlanta, fourteen per cent, and Dr. Rodda states that sixty per cent or more autopsies on new born during first week of life show intracranial hemorrhage.

There is but one other point I want to refer to, and that is the treatment recommended by Dr. Risenfeld of New York who advocates the postural treatment of intracranial hemorrhage in the new born. Any child born with difficult labor, even though he may not in the beginning show symptoms of intracranial hemorrhage he advises should be put in the vertical position and kept in that position for a week if it seems necessary. This was brought to his attention by noting that an incision on the head bleeds more freely when held down and stops more readily when held up. This, of course, does not refer to arterial bleeding but to capillaries and arterioles which is comparable with the average intracranial injury. From this thought he did some experimental work by lumbar punctures on monkeys in which he found the lumbar puncture reading was as much as eighty points less in the vertical position than in the horizontal position. That routine is being followed in every hospital with which he is connected. He gives very flattering reports on the cases he has followed. I simply want to say I have not followed it but I thought it a sound, sensible, and reasonable method, and I think we should think of it and use it whenever we see fit to try it. (Applause)

Chairman Ravenal: The paper is opened for general discussion.

Dr. G. W. Kutscher (Closing): I agree with Dr. Sidbury that there is considerable controversy about the treatment. I offered this because I have found it to be the best I know. I don't believe I want to let the ordinary case go without doing something in the way of relieving pressure if it is a known fact that the pressure is elevated. There is also controversy as to whether the clot forms within the first two or three days. I have seen it already formed within less than twenty-four hours postpartum so the clot does form within the less than two or three days that has been recorded in the literature.

Dr. Sidbury remarks that he would be glad to let them go if he knew that they were going to be idiots. Yes, we would, if we knew they were going to die but the sad part of it is all of us doing pediatrics know that we have these cases which may, or may not, be due to intracranial hemorrhage. If there is anything worse to talk about than parents bringing their children to the office in such condition, I would like to know what it is. It is a pathetic thing. I try to be out when they call and get them out of my office as quickly as I can because there is nothing I hate to talk about more than that. If these idiots, so called, at this early date were going to die it would be fine but I think the pathetic part of it is they don't die and I feel that we have something of definite value to offer in this line of treatment. This is the best we can give them in my opinion despite the other opinions. He mentions Dr. Riesenfeld's work.

I have not observed it but have read the literature on it and I absolutely disagree with his opinion regardless of the fact that he is more experienced than I. I agree with his idea that the finger held up does stop bleeding, because when you have a cut finger you have not cut an artery. You have cut a small vein. When you see these lacerations at autopsy you realize how extensive they are; not only veins but arteries, and you are not going to stop arterial bleeding, even in the finger, by holding it up. I don't think his theory will hold water, not with me any way, in regard to postural treatment. I think we have to remember we have infra and supra tentorial lesions. Some of these hemorrhages arise above and some below the tentorium. I do not have time to go into that diagnosis, which is of course rather difficult to make, but some folks think they can make it. If you have a hemorrhage producing a clot formation about the vital centers you will find pressure below the tentorium in the region of the medulla and I think we should relieve that pressure. If we don't do anything else, relieve the pressure.

TREATMENT OF EPILEPSY

By Dr. A. M. McBryde, M.D., Durham, N. C.

Epilepsy is quite a common condition in North Carolina, if the number of cases which we have seen, at the Duke Hospital, is an index to its occurrence. In the period from July 1st, 1930, until April 1st, 1932, we have seen 56 patients with epilepsy. Exactly one-half of these patients were children and the age at which they were first seen by us varied from 18 months to 14 years.

Epilepsy may be defined as a condition characterized by the sudden appearance of paroxysms, in which convulsive movements, loss of consciousness, or both, are principal elements. We shall limit our discussion to the so-called idiopathic epilepsy, keeping in mind the fact that epilepsy is only a symptom and that there is undoubtedly some underlying pathology, whether or not it is apparent.

Epilepsy is of special interest to the pediatrician because of the fact that a large majority of the cases begin in childhood. Talbot, in analyzing 6,595 cases of epilepsy admitted to the Craig colony before January 1st, 1926, found that in 27.7% the onset was between birth and five years of age, in 16.7% the onset occurred between five and ten years of age, and 18% began between ten and fifteen years of age. This makes a total of approximately 62.4% of epilepsy that begins during childhood. It is a recognized fact that once a child has had a convulsion it becomes increasingly easy for him to have repeated convulsions. Therefore, a great responsibility rests on the physician who attends the epileptic child. It is his task to do his utmost at the earliest possible period to alleviate the condition. Too often does the physician label the case as epilepsy, give the child bromides or luminal and forget about it, unmindful of the possible underlying pathology, or of the fact that once the convulsive habit becomes firmly established it is increasingly difficult to inhibit.

In this short discussion we do not have the time to go into the various theories of causation of epilepsy. However, no discussion of treatment is complete without a consideration of the diagnostic procedures. Essen-

tial to a correct diagnosis is a thorough neurological examination with special reference to motor and sensory changes. The condition of the optic discs should be especially noted. Spinal fluid studies should be done, including the pressure of the spinal fluid as determined by the water manometer, the cell count, the protein content, the Wassermann reaction, and the mastic test. In addition X-ray films of the skull should be taken for information as to old fractures, the configuration of the sella turcica, evidences of intracranial pressure, and rarefactions due to tumor growths. Blood studies, including the blood Wassermann, blood calcium, and fasting blood sugar should also be done. When a localized lesion is suspected, ventriculography according to the method of Dandy if often advisable. Fay advises lumbar air injection to determine possible cortical lesions. This is possibly a less formidable procedure than ventricular air injection.

With the data from the above investigations one is ready to proceed with the treatment. We can but marvel at the variety of treatments advocated for epilepsy. In past centuries, and even at the present time, the multiplicity of methods and the excellent results claimed by many workers are little short of miraculous. We wish to confine our discussion mainly to ketogenic diet, but first, however, let us consider a few general measures in the treatment. Of prime importance are measures directed toward improvement of the general health. These measures include a proper diet (when ketogenic diet is not used). It should be simple, nutritious, and should contain sufficient calories for body maintenance and growth. In childhood the vitamin content should be abundant. Moderate exercise, daily, in the fresh air and sunlight is essential. Particular attention should be directed toward regulation of the bowels, as many cases have been reported improved or even cured simply as a result of the relief of constipation.

In-so-far as is possible, the patient should be kept free from worry and from mental strain. This is comparatively easy in childhood if the parents are moderately intelligent. By freedom from mental strain, however, we do not mean that the epileptic should be shielded from outside contact and that he should be secluded. Nothing could be worse. His activities should be as normal as his condition allows. Much depends upon his mental attitude.

Sedatives were for years the only method of control of the convulsive attacks. Bromides, the main reliance of physicians for years, have been largely supplanted by phenobarbital. The latter is equal or superior to bromides in controlling the attacks. In addition, the fact that it does not depress the mentality nor cause severe drug rashes makes it vastly superior. The dosage of luminal in children, within reason, is enough to suppress the attack. Fairly large doses may be given several times daily over long periods of time without demonstrable bad effect.

Dehydration in the treatment of epilepsy was suggested by Fay in 1929, and at about the same time by McQuarrie. Fay has reported quite favorable results from this method. It is his practice to limit fluids, including those taken in the food, to 8 to 12 ounces daily, and in addition to limit ice cream, candy and sweets, because of the high water requirements for the metabolism of carbohydrates. A careful intake and out-

put record is kept and in about 10 to 14 days a beginning of adjustment of output to intake is noted. In the majority of cases of grand mal which coöperate, the attacks have been favorably influenced or controlled. He also reports that in many cases grand mal attacks have been converted into petit mal. Fay and others who have used dehydration have had little success in treating petit mal. McQuarrie has also reported favorable results from dehydration, but he prefers to combine it with a mild ketogenic diet.

Dandy, at operation, has found increased amounts of supra-cortical fluid, especially over the fronto-parietal regions, in epileptics. Fay has also found this condition and he feels that this collection of fluid under pressure is a causative factor in epilepsy. He explains its presence as being due to defects in the eliminating mechansim, chiefly the subarachnoid villi and pacchionion bodies. McQuarrie in many carefully controlled studies has found that there is a definite relationship between the water balance and the occurrence of seizures in the epileptic patient. He was able to regularly produce seizures in epileptic patients in 12 to 48 hours, by giving 2 to 5 cubic centimeters of water per kilogram of body weight per hour, while maintaining an effective pituitary antidiuresis by repeated injections of pitressin. In none of the normal controls was he able to produce convulsions, though his measures were more rigorous. From these and other experiments he concludes that the "beneficial effect of the dehydrating regimen used in the treatment of epilepsy might depend in large part upon its preventing over-hydration of the brain cells rather than upon its decreasing the quantity of fluid in the subarachnoid spaces, as maintained by Fay."

We now come to the discussion of ketosis in the treatment of epilepsy. Geyelin, in 1921, was the first to report favorable results from fasting. He found beginning improvement with the appearance of ketone bodies in the urine. Wilder, in 1921, devised a ketogenic diet on which it is possible to live for long periods of time and showed that the convulsions in many cases could be controlled by its use. His work at the Mayo clinic was continued by Peterman, and later by Helmholtz. In 1930 Helmholtz and Keith reported the results of treatment in children over a period of 8 years. 141 cases had been treated for more than a year. Of this number 43, or 30% were free from attacks, 32 or 23% were improved, and 66 or 47% were not benefited. Luther reported a series of 27 children with 33% free, 41% improved, and 26% failure. Higgins reported 41 patients with 27% free, 41% improved, and 32% not benefited. Barborka in 1930 reported a series of 100 adult epileptics on ketogenic diet. Of this group 12 were free from attacks, 44 were benefited, and 44 were not improved. However, in many of his cases a definite ketosis was not maintained.

Various methods of instituting the ketogenic diet have been used. The results by all methods are about the same. Talbot produces ketosis gradually by slight changes at given intervals in the ketogenic—anti-ketogenic ratio. The normal diet consists of a ketogenic—anti-ketogenic ratio of about 1 to 5. (Calculated as grams of fat in proportion to grams of protein plus carbohydrate.) Talbot places his patients on a 1-1½ ratio, maintaining this level for about three weeks. He then in-

creases the amount of fat at intervals of one week to the ratios of 2 to 1, 2-½ to 1, 3 to 1, 3.5 to 1, and, if necessary, 4 to 1. He states that the urinary reaction becomes positive to the sodium nitro-prusside test at about the ratio of 2 to 1, and to the ferric chloride test at 2.5 to 1. Peterman originally began the diet by a preliminary period of starvation. Bridge feels that the ketogenic diet has not been given a fair test until there has been a preliminary period of starvation during which there is a marked loss of body weight, due to the loss of body fluid. He starves his patients for a minimum period of five days giving at least a liter of water per day. Two sticks of chewing gum are allowed per day. At the end of the fasting period the patient is placed directly on a 4 to 1 diet, this being given slowly for the first few meals to prevent vomiting. McQuarrie advises a ketogenic diet, sufficient to produce a mild ketosis, in conjunction with a low fluid intake. He has been able to control certain patients on this regime that were not controlled by means of either method alone. His method is to give 2 cc. of 30% cream per kilogram of body weight, every hour during the day for a period of 2 to 5 days. An adequate diet is then given adjusting the ketogenic—anti-ketogenic ratio to maintain a mild ketosis. Water is restricted as far as possible without causing the patient too great discomfort. The water intake and diet are then adjusted so as to be compatible with the needs of the body for maintenance and growth, and at the same time preventing convulsions. Water is restricted to 15 to 30 cc. per kilogram per day. He prefers this border-line ketogenic diet because of the fact that on a strong ketogenic diet there is a negative calcium and phosphorus balance. In addition he feels that the hypercholesterinemia resulting from severe ketosis may be deleterious.

The protein requirement of the child on ketogenic diet has been variously estimated. On a strict diet Talbot feels that 1-¼ grams of protein per kilogram of body weight is sufficient. McQuarrie, on the other hand, has found from his studies that on a strong ketogenic diet at least 2 grams per kilogram are needed for maintenance and growth.

How long should the child be kept on the rigid ketogenic—anti-ketogenic ratio of 3-½ or 4 to 1? This period varies with each case. As a general rule it is safe to keep the patient on the rigid ketogenic diet for a period of six months to one year, gradually reducing the fat to a ratio of 1 to 1, during the second year. A gradual change is necessary for good results, as often a sudden change to a high carbohydrate intake will cause marked weight gain due to fluid retention, and return of the seizures. Moderate limitation of fluids, as suggested by McQuarrie, seems certainly to be of advantage in selected cases.

The mechanism of the action of ketogenic diet in epilepsy is not clearly understood. All workers agree that the dehydration which occurs, both by limitation of fluids and on the ketogenic diet, is of prime importance. The acidosis produced is also a factor. McQuarrie feels that the mechanism for controlling the semi-permeability of the brain cell membranes is inherently defective in the epileptic patient, and that consequently over-hydration causes a change in the brain cells with alteration in the electrolyte concentration, followed by convulsions.

We have used the ketogenic diet in several patients under our care, but the series is too small and the time of use too short for the results to be of any value. Suffice it to say that our results are in accord with those reported. We use the method of starvation for a period of above five days, or until there is marked loss of body weight with ketosis. After this period we place the patient on a 4 to 1 ketogenic diet which is maintained for a period of about a year, when it is gradually reduced to a ratio of one to one. In some cases, however, it is probably better to gradually institute the diet as suggested by Talbot. This is especially true in young children, in whom acute acidosis is not uncommon following the period of starvation. When acute acidosis occurs carbohydrates and fluids should be given at once. The ketogenic diet that has an adequate caloric value and sufficient protein for body needs is sufficient to make the patient gain in weight and grow normally. Contra-indications to the use of either ketogenic diet or the dehydration treatment are mentally deficient children, or lack of coöperation on the part of the parents, either of which conditions make the measures useless. In many cases it is hard to impress the parents with the fact that small amounts of carbohydrate added to the diet, render it ineffective. I especially recall one patient, three years of age, who was admitted to the hospital in status epilepticus. His convulsions ceased following starvation and the use of sedatives. He was starved for a period of five days, during which time he lost about two kilograms in body weight. He was then put on the ketogenic diet of 4 to 1 that maintained this weight loss. After several days on this diet he was given, by mistake, 50 grams of pineapple with one of his meals. In 12 hours he had gained 1.5 kilos, and was again in continuous convulsions. It is very difficult to institute the ketogenic diet at home, especially if the preliminary period of starvation is used. We feel that it is probably best to hospitalize the patient for a period of about ten days, during which time the mother can be given instructions as to the preparation of the diet. On discharge a definite diet list should be given the mother. The patient should be followed closely, keeping a careful check on the diet, the weight of the patient, and the degree of ketosis.

We have endeavored to give a brief summary of the chief points in the treatment of epilepsy. In the limited time a full discussion is impossible. Results of various workers have been cited to show that the ketogenic diet is of definite value in the treatment of this condition. Dehydration alone or in conjunction with the ketogenic diet is also a valuable aid to treatment. Small doses of luminal with either ketosis or dehydration may be of advantage. However, these measures are applicable to perhaps a minority of epileptic patients, due to lack of intelligence, lack of coöperation, or both. Economic conditions prevent the use of the ketogenic diet in many cases that are otherwise suitable. Whatever the treatment, the general treatment of the individual patient is of prime importance.

BIBLIOGRAPHY

1. Barborka, C. J.: Epilepsy in Adults—Results of Treatment by Ketogenic Diet in One Hundred Cases. Arch. of Neurol. and Psych., 23: 904-914. 1930.

2. Bridge, E. M., and Lob, L. V.: The Mechanism of the Ketogenic Diet in Epilepsy. Bull. of Johns Hopkins Hosp., 48: 373-389. 1931.

3. Fay, T.: The Therapeutic Effect of Dehydration on Epileptic Patient. Arch. of Neurol. and Psych., 23: 920-945. 1930.

4. Helmholtz, H. F., and Keith, H. M.: Eight Years Experience with the Ketogenic Diet in the Treatment of Epilepsy. Jour. A. M. A., 95: 707-709. 1930.

5. Lennox, W. G., and Cobb, Stanley: Epilepsy, Medicine, 7: 105-290. 1928.

6. McQuarrie, I., and Keith, H. M.: The Relationship of Variations in the Degree of Ketonuria to Occurrence of Convulsions in Epileptic Children on Ketogenic Diets. Am. Jour. Dis. Child. 34: 1013-1029. 1927.

7. McQuarrie, I.: Epilepsy in Children: The Relationship of Water Balance to the Occurrence of Seizures. Am. Jour. Dis. Child. 38: 451-467. 1929.

8. McQuarrie, I., and Peeler, D. P.: The Effects of Sustained Pituitary Antiduresis and Forced Water Drinking in Epileptic Children. A Diagnostic and Etiological Study. Journal of Clin. Invest. 10: 915-932. 1931.

9. Peterman, M. G.: Ketogenic Diet in the Treatment of Epilepsy. Jour. A. M. A. 84: 1979-1983. 1925.

10. Talbot, F. B.: Treatment of Epilepsy. The Macmillan Company, New York. 1930.

Dr. Arthur London, Jr. (Durham): I do not feel that I can add anything to this very excellent address but I would like to emphasize just a few points brought out. First, the fact brought out by Dr. McBryde that "once a child has had a convulsion it becomes repeatedly easy to have another." Another thing, "too often the physician in handling a case of epilepsy will order bromide and luminal and let it go at that." It seems the only way in which we can ever hope to control it adequately—although we can never control it entirely—is by first of all making a thorough examination. If the physician is not capable or does not have the facilities to thoroughly examine the child, then it should be sent to an institution where it can be thoroughly examined. We want to emphasize not only the chemical and serological examination and X-ray of the skull but in addition I suggest an X-ray of the base of the skull to show jugular foramen. Fay brought out that in a number of cases he has found anomalies and by simply altering the position of the patient was able to eliminate the attacks. Fay assumes that some certain position may increase the congestion and shows that the patient in convulsions by simply changing positions, fixing them so they can not turn to a certain side, will give relief. Another thing which I think should be mentioned is X-ray of the G. I. tract. While it has not been definitely proven, there is still a feeling it plays a great part in some of these cases.

Now, ventriculography requires special surgical technique although an encephalogram should be easily done by the well trained person. The dehydration treatment is difficult to carry out because of the fact that it is almost impossible to get the family to coöperate with you. If you can lock the child up and keep him there a year or two you may be able to accomplish something but if the family doesn't keep him under constant observation very little can be accomplished.

I have had encouraging results in using the Ketogenic diet but feel that it is by no means a panacea. In some cases a combination of the different recognized therapeutic measures will give results when any of them used singly will fail. A case under my care at the present time

illustrates this. The patient, a boy of four and one half years who had been having convulsions since one year old. Had been given luminal in moderate doses with no effect. Dehydration was tried with no effect. The ketogenic diet was used with only moderate improvement. Following Ventriculography there was definite improvement. The ketogenic diet one to four was continued and when luminal one half grain four times a day was added the convulsions ceased. The child was then free of attacks for thirteen months when the luminal was stopped—two weeks later he had two mild seizures. The luminal was again administered and he has been free from attacks since. It is worthy of note that an X-ray of the G. I. tract revealed a very spastic colon which was relieved by atropine.

Dr. Reade Buchner (New York): In the past five years I have had about three hundred and fifty cases under observation and have tried practically every known cure, starting with bromide. One doctor added sodium chloride to the bromide and claimed to have retained a longer cessation. It seems that the treatment of epilepsy depends a great deal upon changing the environment of the patient; the more often the environment is changed the nearer the cure. I do not believe we will ever attain the Utopial goal of success with a heterogenic diet, and if you continue too long or stick to it, I doubt the practicability of it. We have cut out luminal entirely from our routine treatment because we found from autopsy several cases of chronic encephalitis in the course of prolonged treatment with luminal. We used to use luminal almost exclusively when it became so popular about ten or twelve years ago but we found by checking up on autopsies that practically the same lesions and perivascular conditions obtained and we have discontinued its use with a great deal of success. We found through study that the lactic acid content increased and working from that basis we give the patient injections of sodium carbonate three times a week. We give them three gr. which is put up especially by Parke-Davis Company; three injections a week, coupled with three gr. capsules of sodium carbonate three times a day. We do this with the idea of alkalinizing the blood. We have found in the course of three years that we have gotten wonderful results from this method; however, we do not claim that this is the last word on it. Dr. Pike, who has done much work in bile chemistry believes that probably with further work in blood chemistry we will probably find the answer to a cure for epilepsy.

I would also like to state that in the North we adopted the plan of dropping the term "epilepsy." The word seems to cover a multitude of sins. We now call it "A Convulsive State." The term "epilepsy" may include other forms of epilepsy which are curable and need no treatment at all; the types which children usually acquire about the age of seven or eight and around the age of puberty. Twelve or thirteen seems to be a favorable age and in some instances no matter what you give them they get better anyway. There are certain types of epilepsy in which you can offer favorable prognosis.

Dr. A. M. McBryde (Closing): I agree with Dr. London that it takes quite a bit of perseverance to use either the ketogenic diet or

dehydration in the treatment of epilepsy. For this reason a certain number of cases cannot be so treated.

Recently we have had one case which illustrates the lack of improvement of petit mal attacks by dehydration. This little girl, three years of age, did not improve with rigorous limitation of fluids. When ketogenic diet was also instituted there was no improvement. However, for the past month she has been allowed as much fluid as she wished in conjunction with ketogenic diet. In this period she has been remarkably improved.

Frequently there is marked improvement following either ventricular or lumbar air injection, for diagnosis. Therefore, we must use some caution in evaluating the result of treatment by ketogenic diet, following air injection.

The ketogenic diet not only suppresses convulsions in epileptics, but also in those with organic brain lesions. We have recently had a patient, who had a degenerative brain condition, in whom the attacks were controlled by ketogenic diet.

Concerning the remarks of the last speaker; it is agreed by those who have used bromide extensively that the bromide ion tends to replace the chloride ion in the body fluids. Therefore, the maximum effect is usually better attained by limiting rather than increasing the amount of sodium chloride in the diet. Concerning increase in lactic acid content of the blood most authorities are in agreement with the fact that it is within normal limits. No definite chemical changes in the blood have been definitely proven and accepted. The administration of alkaline drugs would seem to be contraindicated in epilepsy, as in some instances in epileptic patients convulsive seizures may be caused simply by the administration of large doses of bicarbonate.

Epilepsy is indeed an unfortunate term for this convulsive condition. Possibly it should be discarded, but it has been with us for ages and I am afraid it will remain with us for ages to come.

"DIABETIC GANGRENE OF THE NASAL SEPTUM"

REPORT OF A CASE

Dr. C. A. Street (Winston-Salem): I have a case to report which is rather unusual. It is the only one of its kind I have seen among many diabetics. I have asked Dr. Coombs to demonstrate and explain this case further to you after I have given the history. Diabetic gangrene of the nasal septum is a rare complication. (Applause)

Chairman Ravenal: Dr. Coombs will now tell you about this boy's condition and in case you want to look at him you will be at liberty to do so.

Dr. F. Coombs (Winston-Salem): I first want to congratulate Dr. Street for the way in which he has handled this case. Six weeks ago had he been in this room none of you would have smelled the tobacco smoke I'll guarantee. Half of you wouldn't even have remained here. When he came to my office and I entered the room the first thought I had was of the worse case of rhinitis I had ever come in contact with in my life, yet I had never seen it in one his age. I picked up my

speculum and looked into his nose without asking any questions and I saw a black mass on either side obstructing both sides of the nasal passages. His mother said he was a diabetic. I took a curet and tried to do something with these masses but it was just like going into stone; so I gave him some drops and sent him home and told him to return after using them religiously for two days. He came back and I was able to clean out this exuded area in either side of the septum. It was just as black as your hat if you happen to wear a black hat. It was as black as it could be, extending from the cartilage backward and posterially as far as I could see. After I cleaned him out—he had so much diabetes I did not want to give him an anaesthetic and he was too young to use cocaine so I tried amytol and with a probe I was able to get between the boney septum and the cartilage. The ethmoid plate would shake so I got me a forcep and removed the ethmoid plate but in getting it out it was crushed so I wasn't so impressed with that and threw that into the waste basket. I began to look about some more but he couldn't stand any more so I sent him home. He came back two or three days later and I wasn't in the office but Dr. Perkins was there so he took some more bone out and threw that away. Later he came back and I took a look and found the vomer to be dislocated and then the question came up as to how I was going to get it out of his nose. It wouldn't pass the nasal passage but after whittling and working around I cut his nose here (indicating) and was then able to get the bone out. He now has no septum at all. His nose is perfectly clean. Nothing was done about it in particular to eradicate any infection. Dr. Street has been treating him for his diabetes and he has no odor that I can detect. If you wish to come up and see him you may do so. (Applause) I would like to remark further that the soft palate had a black area. I could see the soft palate shake.

CASE REPORTS

Gangrene of the face is a rare complication of diabetes mellitus. A few cases of gangrene of the nasal septum and adjacent structures and rare cases of gangrene of other parts of the face have been reported on diabetics.

Bower in 1924 described three cases of gangrene of the nasal septum and turbinates in young diabetics. Two of these developed gangrene of the eyelids on one side. In one the necrosis involved the cheek and part of the upper lip, in another the soft palate. He refers to two other cases in the literature: one, a girl, developed sloughing and gangrene of the orbital tissues following a needle operation for cataract; the other an elderly diabetic with gangrene of the lip.

Connell in 1924 reported a case in a man 35, following infection of both ethmoids and the right maxillary antrum, in which the septum cartilage and membranes, parts of the perpendicular plates of the vomer and ethmoid sloughed away, and the hard palate became perforated, establishing communication between and the right maxillary antrum. The Wassermann was negative in this case and the area healed under treatment.

Ardeshir in 1926 reported a case in an Indian female child aged eight years, of gangrenous destruction of the ala nasi on the right side. The

area healed rapidly with the use of a small amount of insulin and local measures.

Bulger in 1929 reported a case in a woman 21 years of age. Coöperation had been poor and her course had been stormy, with frequent infections. She developed what appeared to be a sty on the lower lid of the left eye, ten days later she entered the hospital with a blood sugar of 502 mgms and marked ketosis. The diabetic condition was relieved with insulin and the usual measures. The eye became worse and in three or four days there was definite gangrene of the entire upper lid, the inner half of the lower lid, nearly all of the left half of the nose and most of the hard palate. A few days later a small area appeared on the left upper lip under the left external nares. The condition did not improve under treatment, the patient became toxic, comatose, and died ten days later, the coma probably being due to toxic absorption.

Bulger also reported a case of Dr. Clopton's in which a physician of 65 developed an edema and swelling of the tongue and neck followed by a necrotic area under the right side of the tongue, and a large sharply defined slough of the right side of the tongue. The area under the tongue was drained, and the slough was removed from the tongue. The area healed rapidly with little defect in function and five years later there had been no similar attacks, the physician being able to perform his usual duties.

The following case is that of a school boy eight years of age, seen first on Sept. 15, 1931. He had begun wetting the bed about six weeks previously, for the past month there had been increased appetite, thirst and more frequent urination with a very marked loss of weight. For the past three days there had been increasing vomiting, abdominal pain, thirst and air hunger. When first seen the boy was emaciated, dehydrated and hyperventillating. He was sent in to the Baptist Hospital at once. His blood sugar was 485 mgms. Temperature normal. Red blood count 3,300,000, white blood count 7,400, haemoglobin 55%. Kahn test negative. Weight 37 pounds. During the next twelve hours he was given 50 units of insulin, 300 cc. of 10% glucose intravenously, and orange juice by mouth, at this time his blood sugar had come down to 65 mgms, and he was feeling and looking much better. On the 16th his left ear drum was opened under a local anesthetic and drained considerable pus for a number of days. For several days his blood sugar varied considerably. On the 17th he was put on a diet of C.H. 75 grams, Prot. 50 grams, Fat 111 grams, 1500 calories; in order to get him on an established diet and insulin dosage as soon as possible so he might return home. On this diet his insulin varied from 20 to 55 units daily. At the end of two weeks he was sent home on this diet and 55 units of insulin. At this time his weight was 43 pounds. While in the hospital he developed the gangrenous area in the mouth, a foul odor and discharge from the nose. At home he did fairly well but his insulin had to be varied a great deal. The mother tests the urine several times daily. The up and down course we believed to be due to the nasal condition. On March 7th he developed a cold, began vomiting and developed an acidosis. I saw him on March the 8th. He appeared much the same as when first seen, except for temperature 104. I attempted to treat him

at home and gave him 20 units of insulin every two hours for three doses at which time the urine was free of sugar, but the vomiting continued so we sent him to the hospital where 40 grams of glucose was given, in 300 cc. normal saline, intravenously. He recovered promptly, went home the next day and did not go back to bed.

Because of the odor from his nose it was necessary for him to remain out of school for five weeks. He is in school now leading his class his mother says. His diabetic condition is good, on a diet of C.H. 100. Prot. 50, Fat 111 mgms with 22 to 25 units of insulin daily.

Bulger in discussing the probable cause in his case says: "The underlying mechanism producing the gangrene must have been quite distinct from that causing gangrene of the extremities in elderly diabetics, where chronic obliterative arterial disease is of prime importance. Occlusion of a single large artery could not account for the distribution of the necrosis. An acute arteritis of a number of small arterial branches may have been the basis of the process. It may possibly have been related to an extreme edema developing in a relatively closed space similar to the gangrene which is seen after subcutaneous injections of calcium chloride or strong glucose solutions. The tendency for a diabetic to develop edema possibly intensified the local edema. One other conceivable factor might be noted. Tissues devitalized by the relative absence of carbohydrate in cell metabolism may be thought of as approaching death and conceivably less able to tolerate the local high concentration of toxins. This may have been a very important factor in causing this unexpected extensive tissue death."

In the case just reported I think the infection in the nose, with the increase in the toxins and the devitalizing of the tissues, by the relative absence of carbohydrate in cell metabolism might certainly be considered as important factors in the production of the gangrenous process.

REFERENCES

1. Bower, C. H. J. A. M. A. 82: 1325. 1924.
2. Connell, E. S. Jour. Mo. Med. Asso. 277. Aug., 1924.
3. Ardeshir, K. Lancet. 1256. June, 1926.
4. Bulger, H. A. Washington University Clinics, Vol. 26, No. 6. June, 1929.

VOMITING AS THE CHIEF COMPLAINT IN INFANCY AND EARLY CHILDHOOD

By Dr. J. C. Knox, Goldsboro

In presenting this paper I wish to take up vomiting from the standpoint as the chief complaint, or in other words, the reason for the patient being brought to the physician's office, or the physician being called to the home of the patient. It is not uncommon for a child to be seen by a physician when vomiting is the chief symptom, and oftentimes there is little else to be found by which he is to arrive at a diagnosis.

In a large number of cases the onset of a disease or condition is ushered in by vomiting. When this is encountered there is a rather wide range as far as the age of the child is concerned, varying from a few hours after birth to the age when the child reaches adult life. The

more perplexing situations are most often found in the period of early infancy, and I might add that they are probably the most interesting. There is a tendency on the part of most of us to be misled by vomiting in infancy and childhood, and we are too ready to attribute the cause to some faulty feeding, or error in the diet. This tendency should be forced into the background. However, a close study of these cases will reveal that the vomiting is an expression of some underlying cause. The frequent changes in diet usually will cause a true gastritis which will add to one's difficulty in the treatment of the case. In the first few days of the infant's life he may show this symptom of vomiting, with or without anything else for the physician to have as an aid for diagnosis. When such a case presents itself to one for treatment for relief, this is the end sought by the parents, he has to think of the many possibilities that may cause vomiting. The greatest aid to the physician in arriving at the diagnosis is a very careful history. The character of the vomiting and the character of the vomitus also aids very materially. There is a limitation of the causes to a few, usually, when the patient is just a few days of age.

Vomiting from birth of all, or nearly all food taken is likely to be due either to some obstruction to the intestinal tract, or to some cerebral injury, usually hemorrhage, which results in an increase in intracranial pressure, and most often accompanied by signs that will place it in that classification. This latter condition, however, may not demonstrate itself until the patient is considerably older. Sometimes it occurs as late as two weeks following birth. This is due most likely to a very slow escape of blood from the bleeding point. This diagnosis is as a rule easily made when the injury is to a part of the brain that reflects itself in muscular twitchings and convulsive seizures, irregular cardiac and respiratory rate, and of course, the bulging of the anterior frontanelle and obtaining spinal fluid usually with blood present, under increased pressure makes the diagnosis complete.

Treatment of these cases is not at all satisfactory.

The cases of vomiting from obstruction present themselves occasionally. The usual history is that there is a vomiting of all food taken, sometimes forcibly which may occur immediately after ingestion, or with an interval, varying from a few minutes until the next feeding time. The obstruction may be complete or partial, and the usual site is the upper intestinal tract. Examination of the vomitus in cases of this type helps considerably to determine the point of obstruction in a negative way. The absence of bile places the obstruction above or at the pylorus, presence of bile, below that point.

X-ray pictures of a Barium meal will help to locate the trouble. The only treatment that is efficacious is surgical. If the condition is due to some faulty position or attachment of the mesentery, and not atresia of the tract, then the chances for correction are greater. I was fortunate enough to see two such cases within a short period, with surgical treatment resulting in a normal tract as far as function was concerned. These two cases were reported at the State Society meeting last year by Dr. T. M. Green.

Vomiting within the first few days of life may be due to, or asso-

ciated with an unbalance of body fluids, resulting in an acidosis. There is usually no difficulty in seeing the need of fluid. This condition is easily corrected by restoring this fluid balance.

Occasional vomiting is also seen at this time, which is stopped by gastric lavage. Once or twice, sometimes is sufficient. The return from the lavage is filled with thick tenacious mucus; when this is cleared up food is retained without further trouble.

Vomiting due to pyloric obstruction either due to pylorospasm, or hypertrophic pyloric stenosis usually begins within the first month of the child's life. Here we see the characteristic projectile vomiting associated with visible gastric peristaltic waves. In this condition the character of the vomiting and of the material vomited is of great aid to the making of a diagnosis. The examination of stools also aid in determining the amount of food passing the pylorus. There is hardly any use of my going into the treatment of these conditions, other than, to advocate a thorough trial of the medical treatment before there is surgical intervention. However, the medical treatment should not persist to the point when the patient becomes a very poor surgical risk.

Overfeeding and underfeeding may cause vomiting which results in the first visit to the physician. The careful study of the child's weight chart will be of benefit in arriving at the correction of the diet.

Intestinal obstruction due to intussusception causes vomiting that is persistent, and here again one needs to study the character of the vomitus and the type of vomiting. In the classical cases there are found the stools with fresh blood and the sausage like mass in the abdomen. There is also, usually, a facial expression of anxiety present. The treatment of such cases should consist of medical and surgical measures. There should not be a postponement of the surgical treatment until the patient is moribund, or as a last resort.

Many of the acute infections are initiated by vomiting and fever. This alone is quite a broad field in Pediatrics, and sometimes one is puzzled about the case, especially if he sees the patient early and there are very few physical signs. The tendency in such instances is to attribute the cause to some food disorder. However, after a day or two the diagnosis is cleared when other symptoms and physical signs appear.

Rumination, fortunately, is seldom seen. The successful treatment of all cases has as yet, not been perfected.

Vomiting is often a habit with children, and at times it is quite well developed. Foods that do not meet with the approval of the taste are promptly returned. Treatment of such cases is not easy unless the physician prescribes the foods that the child likes.

One type of case I have seen recently in which vomiting was the chief complaint, seems to be a type of food allergy—without the usual skin manifestation of urticaria. There was, however, slight eczematous lesions. This usually shows itself in a few scattered areas about the neck, legs and roughness of the cheeks. These cases are at times rather puzzling, and it is necessary to resort to trial and error method of treatment. Unless the patient tires of this mode of treatment and seeks advice from someone else relief from the condition will eventually be obtained.

A FEW FACTS CONCERNING SOME COMMON EYE CONDITIONS IN CHILDREN

Dr. Frank C. Smith, Charlotte

Physicians interested in treating children realize: that certain defects must be corrected during this period of development if permanent impairment of function is to be prevented; that the formation of improper habits often complicates successful treatment by converting a simple problem into one very difficult or impossible to handle successfully later in life; and that certain diseases, characteristic of this age, require special attention. The eye is a highly specialized organ of the body which presents the same problems when considered alone and which indirectly frequently handicaps physical and mental development.

REFRACTIVE ERRORS

When we consider the incoördination of the eyes during the first months of life and how often in later years an eye which has lost its vision will wander outward as the other eye fixes, we are impressed by the instability of binocular vision and the importance of the habit element. To insure binocular vision and fusion it is necessary that the vision of each eye be approximately the same. The retina continues to develop functionally until about the age of six and for its proper development normal stimulation is necessary in the form of acute images focused upon it. Without this stimulus sharp acuity of vision is too often not obtained. For example, we not infrequently see a high degree of farsightedness with a normal retina, but poor vision which cannot be brought to normal with the proper glasses when they are worn for the first time later in life. Again we see one eye with normal vision and the other with poor sight due to a high error. Hope for normal vision in such eyes rests in constant use of the proper glasses as early as possible. It is, of course, often a difficult, patience testing task to examine carefully the eyes of a very young child, but this is no excuse for passing by the age that offers such cases a chance of the most acute vision.

Most children are born somewhat farsighted and nearsightedness is supposed to be quite rare, yet during the past eighteen months we have seen three children under two years of age with nearsightedness of eight diopters or more, an amount sufficient to prevent the recognition of a person fifteen feet away. Such a child cannot be expected to play as ordinary children do or to enjoy being out of doors where everything seems blurred; instead he prefers to sit around with things that he can hold close to his eyes, thus preventing normal physical and mental development. Today, when poor sight prevents seeing the blackboard or hinders reading, it is usually detected by the school examinations. Unfortunately, the ability to see well by no means determines the amount of nervous effort required to see; consequently, the child with eye strain who registers normal visual acuity when tested by the Snellen chart, is frequently missed. His various symptoms such as headache, at times associated with nausea, nervousness or restlessness are attributed to some other cause while he, not knowing why, dislikes to study, falls behind his class and uses his energy in mischief to become a problem at

home and at school. The old advice regarding refractive errors of "wait and see" or "he will outgrow it" should have gone out with the coming of the retinoscope. This combined with complete cycloplegia under atropine enables an accurate determination of the refractive error before the child is old enough for subjective tests. Many children will wear glasses with little difficulty when eighteen months of age, and, in the presence of a gross error, the earlier they are put on the better the functional result will be.

SQUINT

An eye may turn either in or out from paralysis of an extraocular muscle or from impaired vision due to a pathologic change or an error of refraction. We shall consider here the commonest type—concomitant convergent squint.

This condition is usually due to farsightedness and ordinarily is first observed between the ages of two and three years. At first one eye deviates inward occasionally, but soon becomes permanently crossed. Its cause and treatment are explained by considering that both focusing the lens to see clearly and turning the eye in are controlled by the same mechanism. The farsighted child has to focus his lens more than he should; consequently the eyes tend to turn in too much. This imbalance prevents clear vision unless much effort is put forth to overcome it when objects close to the eye are observed. At the age of two or three, when the child attempts close inspection of small objects, he finds there is much less effort required to see clearly if he uses only one eye and allows the other to wander in toward the nose. When the normal balance is restored by correcting the farsightedness before the habit element is established, the eye returns to its normal position immediately and remains there while the correcting glasses are worn. The examination should be made following the instillation of atropine sulphate (not homatropine) 1% t.i.d. for three days, and the full correction should be given.

Later this simple problem becomes a complicated one when the habit element is established and vision of the deviating eye is impaired from disuse. It is also to be remembered that the retina is developing functionally until the age of six. Before this age the percentage of cures is large; each succeeding year the percentage is smaller until after ten years, cures are rare.

In later years an operation offers excellent results from the cosmetic standpoint, but unfortunately the function of the two eyes working as one is lost and glasses are still necessary.

CATARACT

Cataract in children is usually congenital, but may be secondary to disease or trauma.

Congenital cataract is most often of the lamellar type beginning in the center of the lens and is not easily seen with ordinary light until the anterior layers of the lens become opaque, consequently the grayish or whitish reflex may not be noted in the pupil until loss of vision is marked. The important question from your standpoint is: when should such cases be operated upon? The amount of vision the child has will

determine this. If there is sufficient vision to stimulate normal function of the retina, the eye should be left alone. Later in life if the child is able to read and get along reasonably well, no operation should be performed because a lens giving poorer vision than a glass following operation if of greater practical use due to its accommodative power enabling distant and close vision. After operation, a bifocal glass is necessary which permits clear vision for distance but only at a fixed point for reading, making many types of work difficult or impossible.

On the other hand, when the opacity of the lens is such that it prevents practical vision thus interfering with the functional development of the retina, the operation should be done without delay—certainly within the first few months of life and according to some authorities in the first few weeks. It must be remembered that defects in the retina are found in some cases preventing good visual results following operation.

DACHRYOCYSTITIS

Not infrequently the lacrymonasal duct fails to become patulous at birth, but is obstructed either by debris or by a membrane at its lower extremity. This is usually unilateral and is evidenced by more or less constant tearing which sooner or later becomes mucoid. The danger lies in the fact that this secretion is infected, thus creating a constant source of danger as it bathes the eye. For example, a foreign body of the cornea which ordinarily would be harmless opens an avenue for the infected material to set up an inflammation with an ulcer resulting which may end in permanent impairment of vision or even the loss of an eye.

The treatment consists in pressing steadily over the area of the sac for a few seconds several times a day. The sac lies just below the juncture of the lower lid with the nose. Usually the debris will be expressed or the membrane ruptured after this procedure is carried out for several weeks and a permanent cure results. The instillation three times daily of a solution of zinc gr. ½ to an ounce of boric acid solution with a few drops of adrenaline added will often help. If this does not produce the desired result, one probing of the duct usually gives a permanent cure. Since we have to use a general anaesthetic and there is some danger of injuring the delicate structure of the duct, conservative opinion is that it is better not to pass a probe until the child is one year old unless the muco-purulent secretion is profuse.

PHLYCTENULAR CONJUNCTIVITIS

Phlyctenular conjunctivitis derives its name from small nodules of lymphoid cells (phlyctenule), varying from the size of an ordinary pin head to several times this size. These elevations usually appear at the junction of the colored and white of the eye (the limbus). The lesion is at the apex of a triangular dilatation of conjunctival blood vessels. Usually they are multiple and these triangular areas of injection overlap giving a generalized redness to the conjunctiva extending for some distance from the limbus. The apex of the nodule breaks down forming an ulcer which heals in eight to fourteen days, but the attack may be prolonged by the formation of new lesions. The danger of visual impairment comes when the cornea is involved (phlyctenular kerato-con-

junctivitis). The ulcer invades the deep layers of the cornea, sometimes its whole thickness with perforation, or slowly advances across the cornea followed by new blood vessels running out from the limbus. In either case a scar is left resulting in permanent impairment of vision which is frequently great when the pupillary area is involved.

The symptoms are photophobia, lacrimation and spasm of the eyelids, with pain when the cornea is involved. The irritating tears passing through the lacrymonasal duct into the nose produce a rhinitis on the side of the infection. The nasal opening may be almost occluded by crust formation.

This condition may occur in an apparently healthy child, but is usually found in the undernourished emaciated subject or the pudgy anemic. The old term "scrofulous" is frequently used to describe the type of child and, I believe, is still a good term to use in this connection. Many have tried to prove it is tuberculous in origin, but no more than an indirect relationship at best has been proved.

Uncomplicated attacks respond well when the diet is regulated, atropine and ointment of yellow oxide of mercury or calomel powder is used locally and mercury with chalk is given internally. Many cases will respond promptly when a simple diet limiting sugars and heavy foods is given. Of course a corneal ulcer complicates treatment and delays recovery. In spite of a well established simple routine of treatment, the condition is much too frequently improperly treated. The importance of this lesion lies in the fact that it is common and that impairment of vision occurs much too often.

The Section adjourned.

SECTION ON EYE, EAR, NOSE AND THROAT

ENDOSCOPY AND PATHOLOGY OF THE RESPIRATORY TRACT

By V. K. Hart, M.D., Charlotte, N. C.

CHAIRMAN'S ADDRESS

To say that endoscopy is important in a study of the pathology of the respiratory tract would be a platitude. The literature in this respect has been enriched in recent years by the contributions of such men as Jackson, Clerf, Tucker and others.

Nevertheless, in our own state there is need for emphasizing endoscopic study of the larynx and tracheobronchial tree. It affords: 1. Direct vision. 2. Direct surgical approach for removal of growths, biopsy, or cautery. 3. Direct aspiration of secretions for bacterial study. 4. The instillation of indicated medication; and the instillation of lipiodol for contrast media roentgenography. These points are illustrated by the appended case reports.

Mirror examination of the larynx is as a rule very satisfactory. However, at times it is necessary to use the anterior commissure laryngoscope for better view of the extreme anterior portions of the larynx.

Direct laryngoscopy, whether with spatula or the anterior commissure laryngoscope, allows for ready removal of benign growths such as papillomata. Where there is a mass about which there is a question of type, it is essential that biopsy be done by this method. A reliable pathological report is of great help. A few practical examples are cited.

LARYNGEAL CANCER IN YOUNG PERSON

Case I. A young woman, a school teacher, 26 years of age, was seen with a hoarseness of six months duration. Indirect examination of the larynx showed a papillomatous growth attached to the left cord at the junction of the middle and posterior thirds. The rest of the nose and throat examination was negative, except for chronically diseased tonsils. Although we felt that it was probably benign, biopsy was done by the direct method. A microscopic diagnosis was returned by Dr. L. C. Todd, of Charlotte, of squamous cell carcinoma. She was referred for consultation to Dr. Gabriel Tucker, of Philadelphia, where the diagnosis was confirmed and who did a laryngo-fissure type of operation. We have watched her for over a year with no sign of recurrence. Postoperative biopsy was also done on granulation tissue at a later date with negative results. Other laboratory data including Wassermann gave negative findings. This case shows cancer is not by any means confined to the aged.

LEUKOPLAKIA OF THE LARYNX: ULTIMATE MALIGNANCY

Case II. A male, age 43 years, complained of hoarseness of some four months duration. Indirect examination disclosed over the anterior

third of each cord, a studded grayish thickening sharply demarcated from normal cord. There were no other abnormalities. Sputum examination, Wassermann, intradermal tuberculin test, stereoscopic chest plates were all negative. Immediate biopsy was then done from one cord. Dr. L. C. Todd returned a microscopic diagnosis of leukoplakia. This was confirmed by his consultant, Dr. Warthin of the University of Michigan. A few weeks later biopsy was done from the other cord and Dr. Todd returned the same diagnosis of leukoplakia (Chronic inflammatory hyperplasia of mucosa of vocal cord). He pointed out, however, that this should be considered a precancerous lesion.

The actual cautery was used and the lesions disappeared almost completely for three months. The voice again became clear. Small areas of recurrence were again cauterized at this time with good results.

Ten months after the first biopsy, another biopsy was done. There was still no sign of malignancy or specific granuloma although the report in part said, ". . . However, there is a definite hyperplasia in the basement membrane with proliferation of the rete pegs downward which may bear watching."

The patient did remarkably well for fourteen months at which time he was seen with an extensive recurrence of the anterior left cord. Biopsy was done with still no evidence of malignancy or specific granuloma. Cautery was done.

Two months later (two years and three months from first examination) a mass appeared involving the left ventricle and arytenoid with complete fixation of the left cord. This developed in rather a fulminating manner. An immediate diagnosis of cancer was made. He was referred to Dr. Gabriel Tucker of Philadelphia where biopsy confirmed the diagnosis. Dr. Tucker did a complete laryngectomy. The patient has been followed for six months post-operatively and has continued well to date. The case emphasizes leukoplakia of the larynx as a precancerous lesion. Here again the patient is not aged.

NON-CANCEROUS LARYNGEAL TUMOR IN AGED INDIVIDUAL

Case III. A white male, aged 82 years, complained of hoarseness of eleven months duration with recent attacks of dyspnea. Indirect laryngoscopy showed large, pedunculated mass attached to the anterior left cord. Because of difficulty in breathing we did not wait on routine laboratory work, but did immediate removal with a laryngeal snare by direct laryngoscopy. The pathological report by Dr. L. C. Todd stated that this was a benign fibrous polyp. We then used the electro-coagulation on the remnant at the point of attachment. He got excellent healing with no scar and perfect voice. He has been seen once subsequently with no signs whatever of recurrence.

This case illustrates that not every mass in an aged individual is cancer. Such a case again emphasizes the importance of pathological study and not being too hasty in an opinion.

ATYPICAL TUBERCULOSIS OF LARYNX

Case IV. A married white woman, age 50 years, complained of hoarseness of nine months duration. Five months previously she had had a goitre removed. No improvement in the voice followed.

Indirect laryngoscopy showed a mass with small excrescences, involving the right false cord, the right ventricle and the anterior commissure above the cords. There was no impairment of motility of the cords. Sputum here and elsewhere was negative for acid fast organisms. The rest of the nose and throat examination was negative. Blood Wassermann was negative. Her physician reported possible tubercular lesions of both species (X-rays were taken) with questionable activity.

Direct laryngoscopy and biopsy were done using the anterior commissure laryngoscope. The microscopic report by Dr. L. C. Todd was that of tuberculosis. The electro-coagulation was then used by multiple puncture into the mass. (We decided to try this method rather than the actual cautery in this particular case to prevent unnecessary scar tissue formation with impairment of voice. We have not yet observed this patient over a long enough time to report the end result. We will use it several times if necessary).

This case stressed the importance of biopsy. The mass was atypical in location and appearance. Moreover we should not be thrown off our guard by a negative sputum. If the Wassermann is positive in such a case we feel that it is justifiable to wait six or eight weeks on intensive anti-luetic treatment by a competent man. By this time, if specific, the mass usually begins to rapidly subside. No change in the mass means that biopsy should be done. Moreover, in our experience syphilitic and tubercular lesions are readily distinguishable microscopically.

PROLAPSE OF THE LARYNGEAL VENTRICLE

Case V. A white male, age 29 years, complained of pain on talking. He had been teaching school.

Indirect laryngoscopy showed a smooth rounded swelling on the left continuous with the false cord and partially hiding the true cord. The mobility of the cord was normal. There was no other laryngeal pathology. The rest of the nose and throat examination was negative.

A diagnosis of prolapse of the laryngeal ventricle was made on these factors: 1. Swelling was continuous with the false cord, but sharply demarcated from the true cord. 2. The same occupied the anterior two thirds of the ventricle. 3. The swelling could be replaced with a probe.

Under local anesthesia direct biopsy was done. At the same time, feeling this was a benign prolapse, the electric cautery was used cautiously throughout the extent of the ventricle by means of several puncture cauterizations. The biopsy report by Dr. L. C. Todd is of sufficient interest to quote verbatim, "Specimen consists of a compound alveolar serous gland arranged in lobules under the mucous membrane which is covered with stratified columnar epithelium normal in appearance. The gland shows a considerable amount of fatty replacement of the glandular acini and also a distention of the remaining lumina indicating a duct obstruction. These findings then would point to an obstructive enlargement of a serous gland of the larynx with retention enlargement and degeneration of gland tissue proper."

The pathology in this case, then, was in the nature of a retention cyst. There was perfect healing with complete reattachment of the mucous membrane of the laryngeal ventricle. The voice has remained

good. We have now followed him for eighteen months with no recurrence of symptoms or prolapse. All laboratory data, including blood Wassermann, was negative.

TRACHEAL COMPRESSION: HODGKINS DISEASE

Case VI. A white female, age 35 years, was seen in consultation with Dr. E. J. Wannamaker, of Charlotte, North Carolina, because of unexplained dyspnea. Extensive laboratory data (negative blood Wassermann) and X-ray study had failed to give a satisfactory explanation. She was most comfortable in the semi-recumbent position.

In this position, a 7 m.m. bronchoscope was passed. Very marked compression of the trachea was encountered in its lower third. The compression was anteriorly and apparently more to the right. A suction tube could be forced passed the obstruction (no pus) but not the bronchoscope.

A bronchoscopic diagnosis was made of mediastinal mass probably Hodgkin's disease or lymphosarcoma. Shortly thereafter a gland appeared above the clavicle. This was sent to Dr. L. C. Todd who returned a diagnosis of Hodgkin's disease.

We followed this patient to autopsy three years later. There was an infiltrative and inflammatory lesion involving not only the peritracheal and bronchial glands but the right upper lobe of the lung. Microscopical studies confirmed the diagnosis of Hodgkin's disease of an infiltrative type.

OBSCURE TUBERCULOSIS: VALUE OF BRONCHOSCOPY

Case VII. A white male, age 57 years, was seen because of a supposed lung abscess. His symptoms were productive cough and loss of weight. There were no relative antecedent factors. His Wassermann was negative. His X-ray showed a marked circumscribed area of increased density in the lower portion of the upper right lobe. Repeated sputum examinations had been negative. (They were here too by the ordinary methods) I quote my bronchoscopic report, "Bloody mucopus was encountered at the bifurcation. This was not excessive in amount and had no odor. A specimen was aspirated for bacteriological study. The left bronchial tree was normal and no pus whatever was coming from the left lower or upper lobe orifices. The right bronchial tree was next explored. No pus was seen coming from the right middle or lower lobes, the orifices of which were normal. The right upper lobe bronchus, however, showed bloody mucopus spouting from the same on coughing. The orifice of this lobe was bloody and swollen suggesting chronic infection.

Bronchoscopic Diagnosis: Chronic infection of right upper lobe. Though this may be a non-specific infection, the character of the pus and the apparent limitation of the pathology to the upper lobe, would certainly warrant a suspicion of a tuberculous lesion."

We were not able to find the organisms even in the broncho-scopically aspirated specimen. However, by taking a twenty-four hour specimen, and using the Mulhauser-Czapleuski method of concentration by continuous centrifugalization, we were able to find typical tubercular

organisms. Bronchoscopy here urged us on to further study, and suggested the proper diagnosis.

CALCIFIED PERIBRONCHIAL GLAND: RUPTURE INTO BRONCHUS

Case VIII. A white female, age 36 years, was referred by Dr. Heath Nisbet, of Charlotte, North Carolina, because of paroxysmal coughing with the raising of small hard substances resembling somewhat irregular pieces of chalk. The general physical examination and laboratory data, including Wassermann, had been negative. The patient also complained of a bad odor to the breath which she stated had been noticeable only since onset of cough and was worse after coughing.

Stereoscopic chest plates showed only what was apparently a large calcified peribronchial lymph gland on the right with areas of decreased density (mottled appearance) suggesting softening. In the lower right chest at the extreme periphery of the parenchyma of the lung was a small, circumscribed, calcified nodule, the so-called "sentinel gland" indicative of a portal of entry for a childhood glandular tuberculosis. However, there certainly was nothing to suggest a tuberculosis in the patient as she weighed over two hundred pounds.

Diagnostic bronchoscopy under local anesthesia was done. I quote my bronchoscopic report at that time, "In the right main bronchus just below the opening of the upper lobe, there was a mass of tissue, apparently attached posterior and mesally. This was removed in almost its entirety with the bronchoscopic biopsy forceps. After this, the bronchial tree was explored on both sides but no other pathology was found.

The tissue was sent to Dr. L. C. Todd for diagnosis. He reported, "Specimen consists entirely of edematous hemorrhagic pyogenic granulations. No malignancy. No tubercles."

We had also sent some of the hard particles expelled by coughing for examination. Dr. Todd reported these as calcium salt deposits.

We then had enough evidence to make a diagnosis of pressure necrosis of the right main bronchus by a calcified peribronchial gland, with probably secondary infection of the same by way of the bronchus.

This was further supported by the fact that over a period of several months following the removal of the tissue she became entirely symptom free. The cough and odor ceased. We have had no occasion to repeat the bronchoscopy.

This case stresses the importance of bronchoscopic biopsy. I stressed this in a previous paper (Southern Medicine and Surgery, June, 1931) showing photographs of primary carcinoma of the bronchus.

BRONCHIECTASIS WITH VINCENT'S INFECTION

Case IX. A white female, age 30 years, complained of productive cough. The nose, throat, and laryngeal findings were negative. The sputum examinations were negative for tuberculosis. Bronchoscopy was carried out under local anesthesia. I quote my report at that time, "There is a good deal of pus, most of which is coming from the right lung. The right lower lobe bronchus is partially occluded by hyper-

plastic tissue. Biopsy done. Dilated (with bronchial dilator) and specimen of pus taken in specimen collector direct from bronchus."

Dr. Todd's report was, "Dark field examination of aspirated pus shows abundant, coarse, actively motile spirochaetes of the usual oral and putrefactive type. Microscopic sections of biopsy tissue show the specimen to consist of three fragments of bronchial cartilage, mucosa with underlying racemose mucous glands and the supporting areolar and connective tissue. There is a dense lymphocytic infiltrate of the epithelium—a chronic bronchitis. No sign of malignancy."

Lung mapping was later curried out using the catheter technique. This showed an extensive right lower bronchiectasis. A second bronchoscopy confirmed the fact that all the pus was from the right side.

Because of the complicating Vincent's infection she was referred to her family physician for a few doses of arsenic intravenously. We also advised a phrenic avulsion on the right side at a later date because we felt that such a large bronchiectatic cavity was bound to flare up again with the first upper respiratory infection.

Malignancy should always be ruled out in any bronchial obstruction. In our experience Vincent's can only be ruled out safely by a dark field examination of bronchoscopically aspirated pus.

It has been claimed that as high as 80% of bronchiectatic infections are due to Vincent's organisms.[1] I wrote to Dr. Louis Clerf, of Jefferson Hospital, relative to this and he replied that in their bronchoscopic work, not higher than 25% of their cases proved to be of this etiology. In our last five cases of unilateral lung infections, (excluding circumscribed extrabronchial abscesses of the parenchyma) four of which were proved bronchiectatic conditions by lung mapping, and all of whom had dark field examinations of bronchoscopically aspirated pus, only one was positive for Vincent's. Therefore, 80% seems to be much too high a figure. Moreover, the permanent cure of these patients by arsenic alone is quite questionable.

SUMMARY

Cases presenting respiratory tract pathology have been reviewed. In all the importance of pathological studies was illustrated. These cases have also emphasized the following: 1. Cancer of the larynx is not confined to the elderly individual, but is occasionally seen in the young. (Case I) 2. Leukoplakia of the larynx should probably be considered as a precancerous lesion. (Case 11) 3. Not every laryngeal mass in an aged individual is cancer. (Case III). 4. Not every case of laryngeal tuberculosis is typical; nor must we be thrown off our guard by a negative sputum by the ordinary methods of examination. (Cases IV and VII) 5. An apparent prolapse of the laryngeal ventricle should not be pronounced benign until biopsy has ruled out neoplasm. Our one case was benign and was cured by means of the electric cautery. (Case V) 6. Any unexplained dyspnea should be examined bronchoscopically. (Case VI) 7. Any obscure type of chest pathology merits bronchoscopic investigation. (Cases VII, VIII, and IX)

PLATE 1. Drawing from life, mirror view, of carcinoma of left vocal cord in young woman, age 26 years. Complaint, hoarseness. Very favorable location and stage for operative cure. (Case 1)

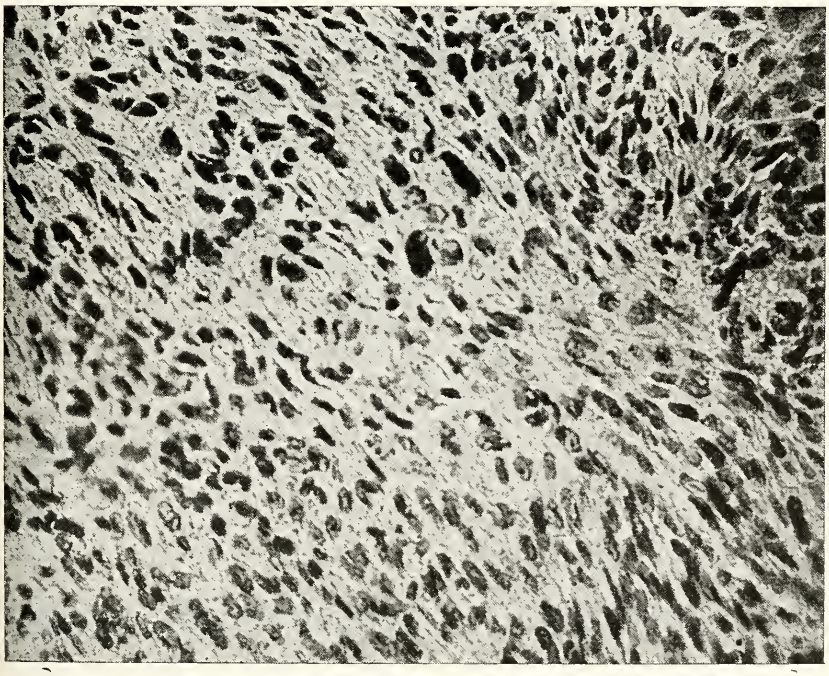


PLATE 2. Microscopic view of widespread dermoid carcinoma in same patient after removal by direct laryngoscopy. High power. (Preparation and microscopic diagnosis by L. C. Todd, Charlotte). This shows importance of routine pathological studies on growths removed from the larynx and that cancer is not necessarily confined to the aged.

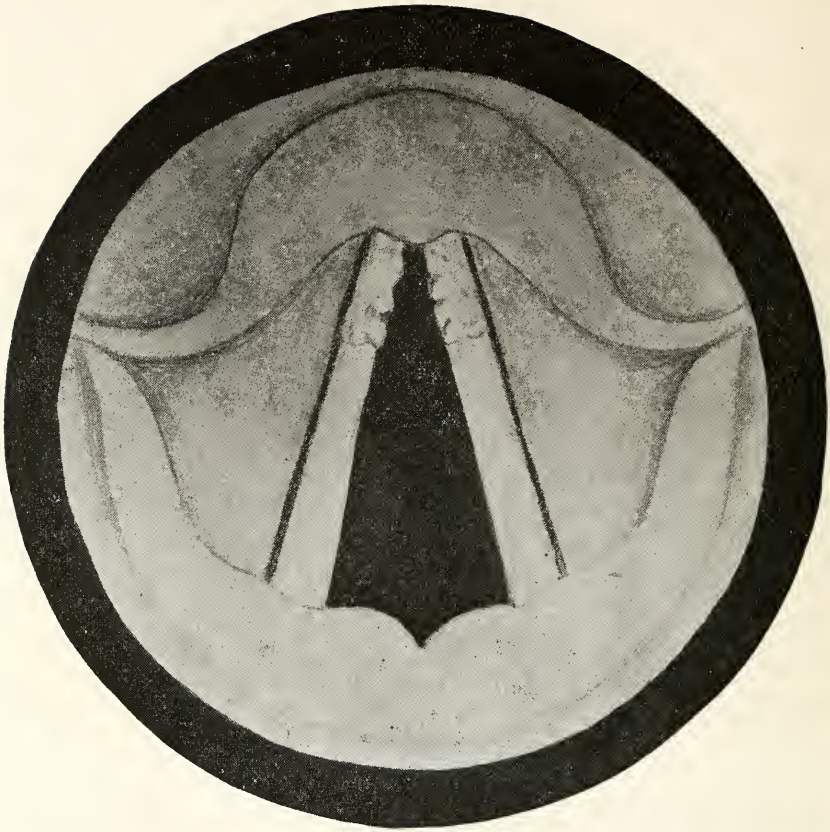


Plate 3. Drawing from life, mirror view, of leukoplakia of vocal cords in man, age 43 years. Complaint, hoarseness. Note thickened, studded appearance of anterior cords. (Case 2)

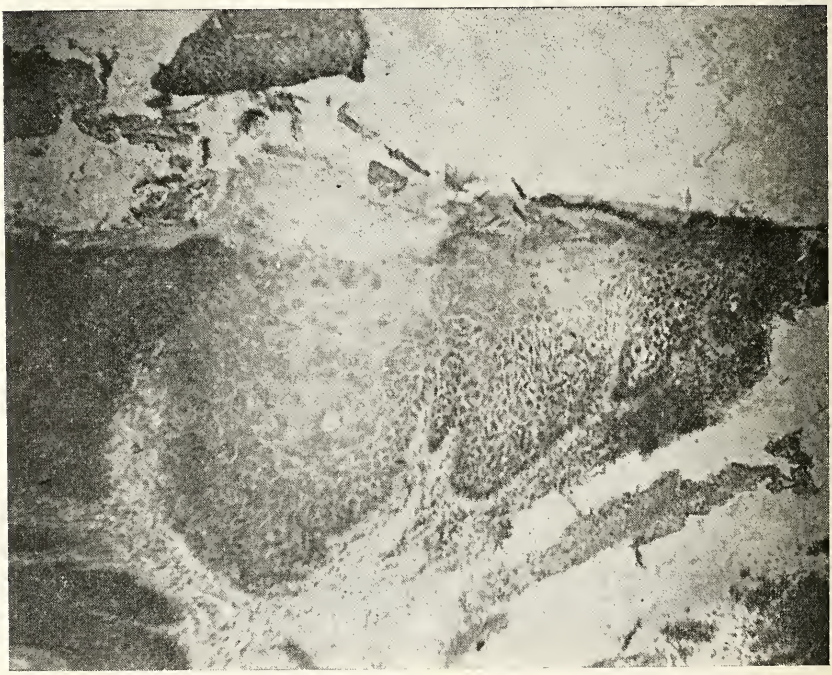


Plate 4. Microscopic view of specimen taken by direct laryngoscopy, same patient, showing leukoplakia (hyperkeratosis). Note hyperplasia of keratin layer of epithelium. Low power. (Preparation and microscopic diagnosis by L. C. Todd, Charlotte).

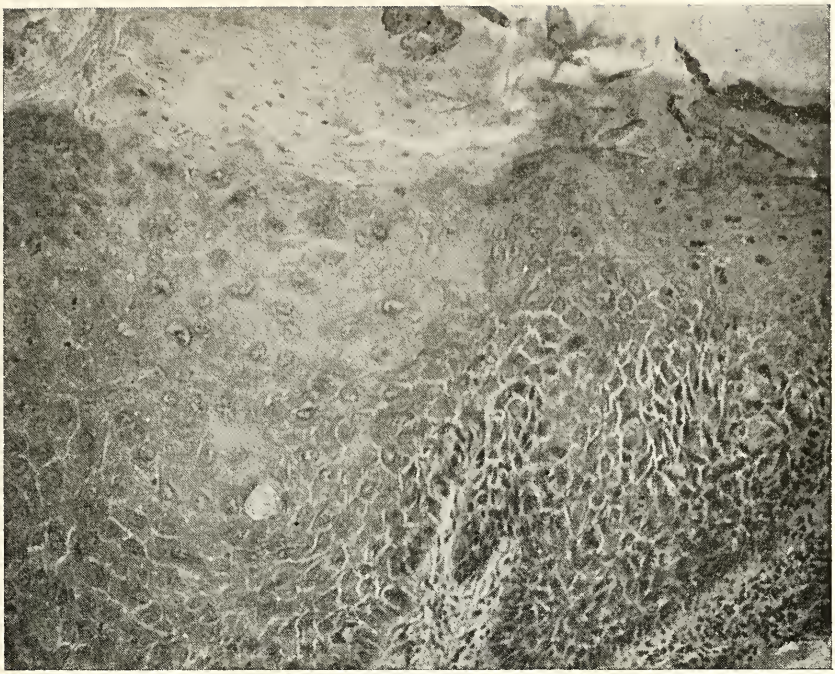


Plate 5. Same specimen, high power.

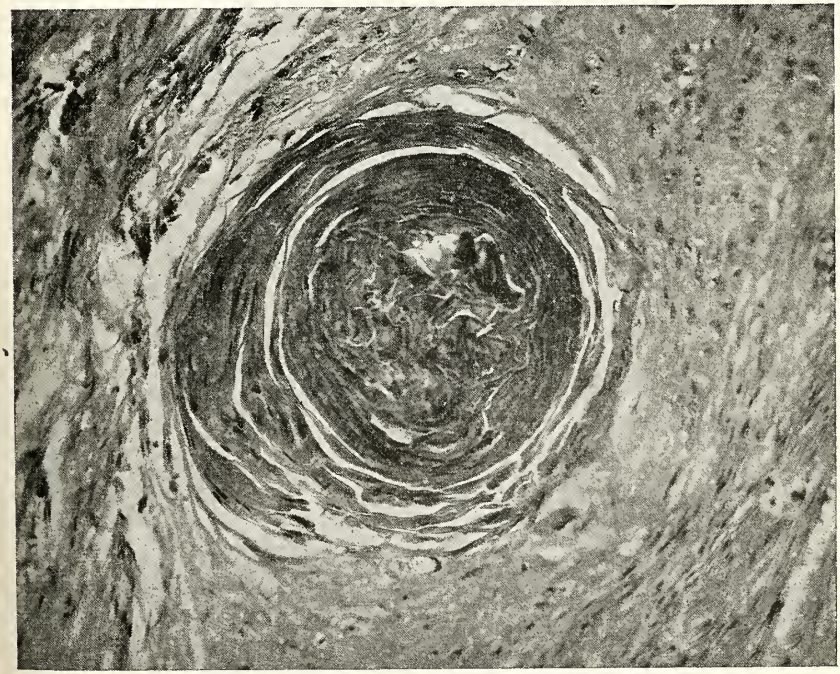


Plate 6. Same patient, two years and three months later, showing biopsy specimen under low power. Frank squamous cell carcinoma is now apparent. Intermediate biopsies had also shown only hyperkeratosis. Leukoplakia of the larynx, then, as elsewhere must be regarded as precancerous. (Preparation and microscopic diagnosis by Dr. E. A. Case, Philadelphia, Pa).

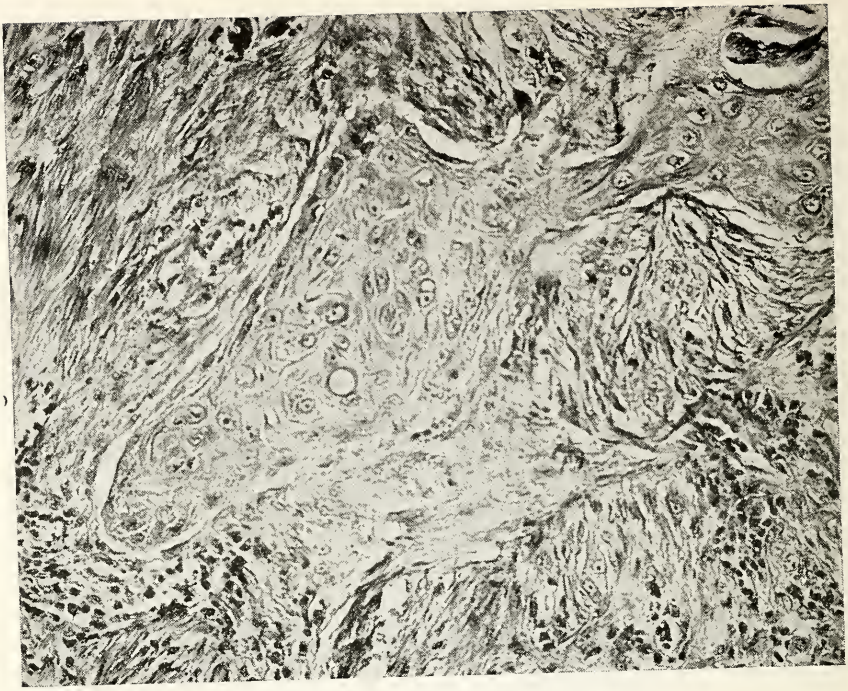


PLATE 7. Same specimen under high power.

PLATE 8. Biopsy specimen from laryngeal mass in Case IV in right ventricle and anterior larynx of a woman age 50 years, showing tuberculosis. Complaint, hoarseness, which was attributed to a thyroid adenoma. Note tubercles with caseation at center. Low power. Too much reliance must not be placed on a negative sputum, which was so in this case. (Preparation and microscopic diagnosis, by L. C. Todd, Charlotte).

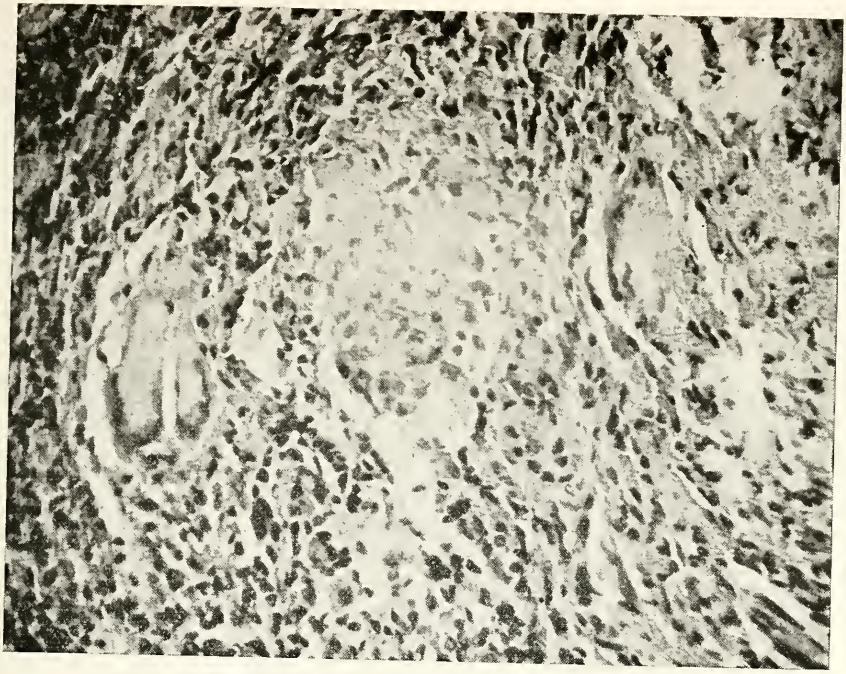


PLATE 9. Same specimen, high power.

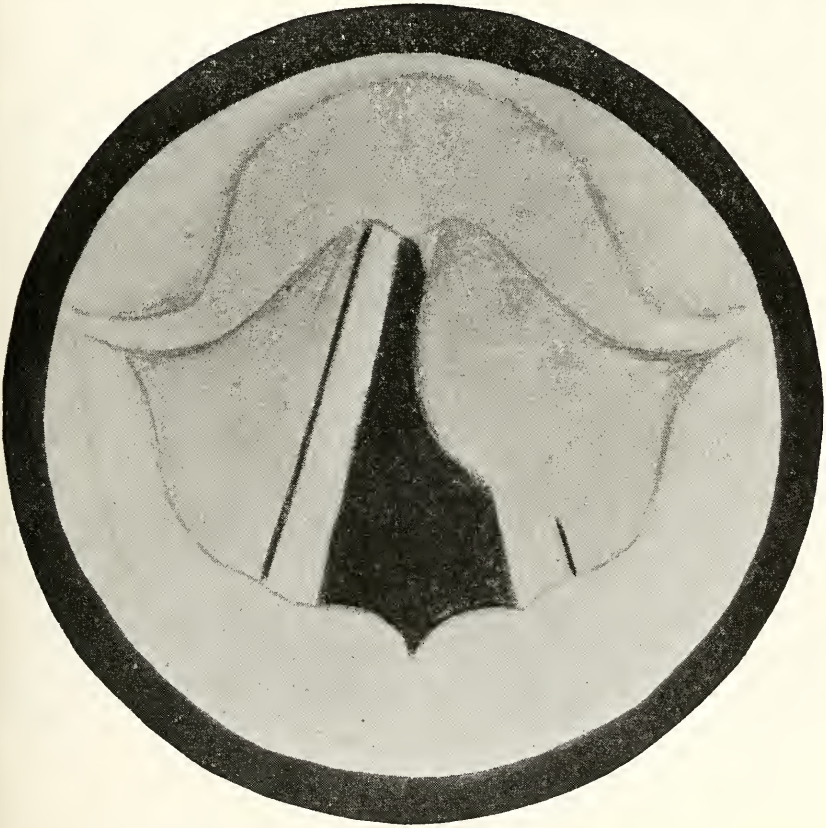


PLATE 10. Drawing from life, mirror view, of prolapse of the left ventricle in a young man, age 29 years. Complaint, hoarseness. Complete cure was obtained in this case by use of the electric cautery with reattachment of the

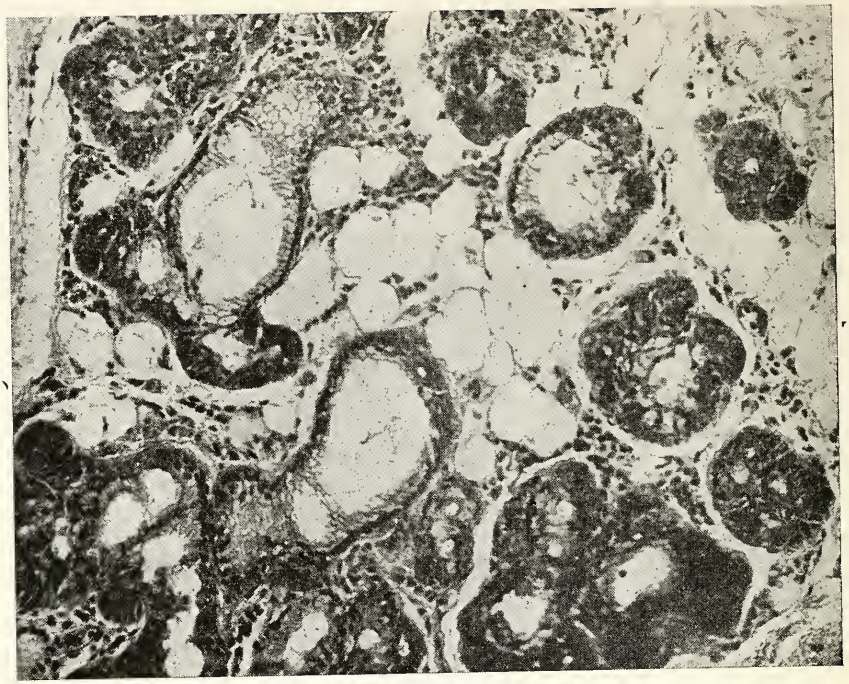


PLATE 11. Biopsy specimen same patient, showing distended lumina of compound alveolar gland, in reality a retention cyst of ventricle. Low power. (Preparation and microscopic diagnosis by L. C. Todd, Charlotte).

PLATE 12. Same specimen, under high power, showing normal mucosa with chronic cellular infiltrate beneath.

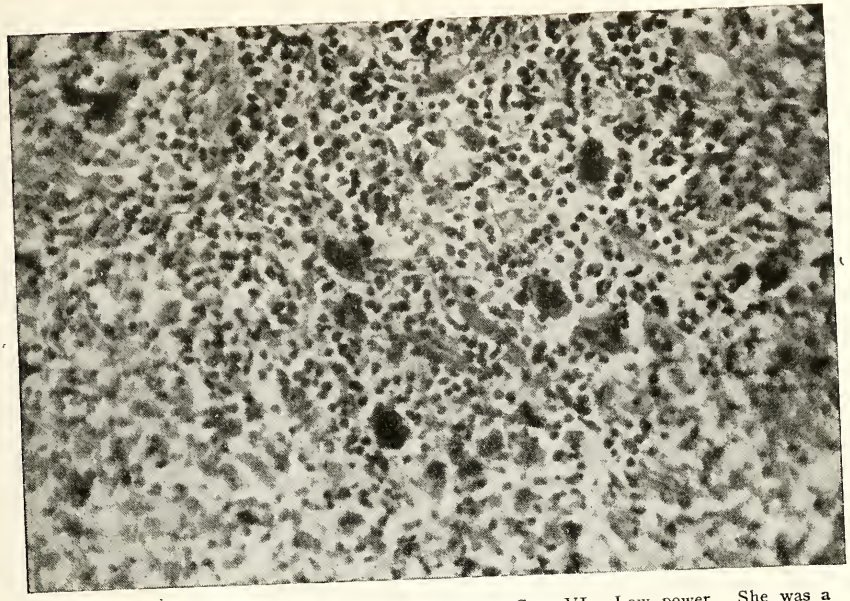


PLATE 13. Specimen of supraclavicular gland in Case VI. Low power. She was a young woman age 35 years with dyspnea due to anterior tracheal compression demonstrated bronchoscopically. This shows Hodgkin's disease. It was necessary to bronchoscope her in the semi-recumbent position. Any case of dyspnea should be studied endoscopically. (Preparation and microscopic diagnosis by L. C. Todd, Charlotte).

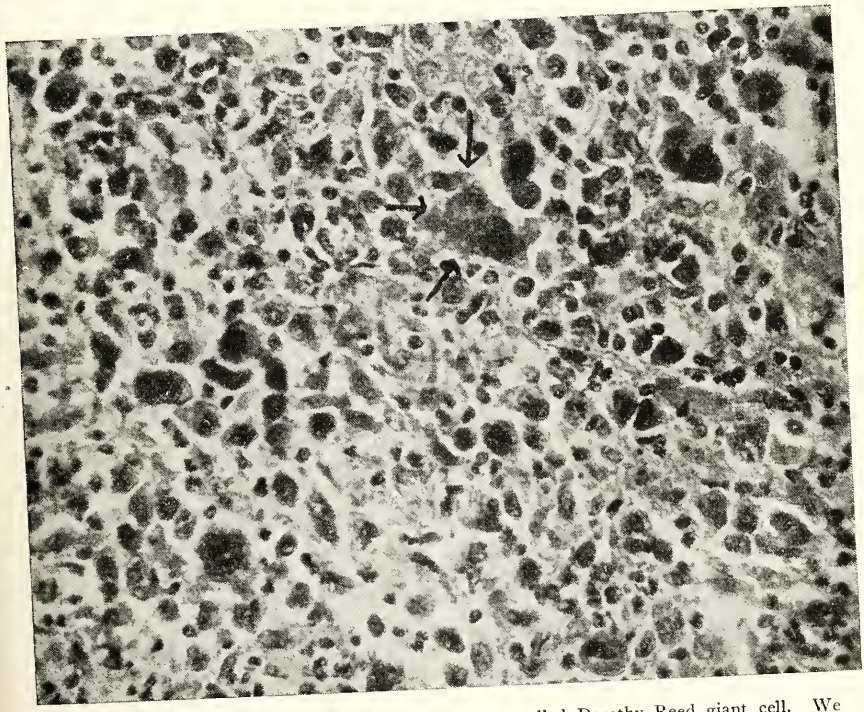


PLATE 14. Same specimen, high power. Note so-called Dorothy Reed giant cell. We were able to follow this patient to autopsy three years later. Hodgkin's disease was confirmed by post mortem microscopic study. It was an infiltrative type with involvement of the right upper lobe, peritracheal and peribronchial glands.

PLATE 15. Roentgenogram of white male, age 57 years, with circumscribed area of increased density in right upper lobe. He was sent for treatment for a supposed lung abscess. Repeated sputum examination were negative for tubercular organisms. Because of the bronchoscopic findings (bloody mucopus from right upper lobe), the Mulhauser-Czapleuski method of concentration by continuous centrifugalization was used and tubercular organisms demonstrated. (Case VII)

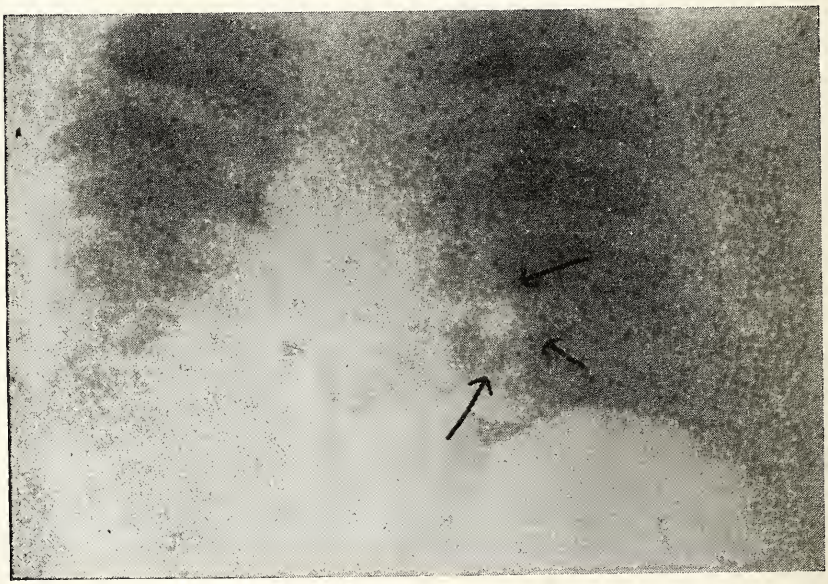


PLATE 16. Roentgenogram of white female, age 36 years. Note large calcified peribronchial gland on right. Complaint was cough with odor and expulsion of hard rock-like particles. A rupture of the gland into the bronchus was demonstrated bronchoscopically. Cure was also obtained bronchoscopically. (Case VIII)

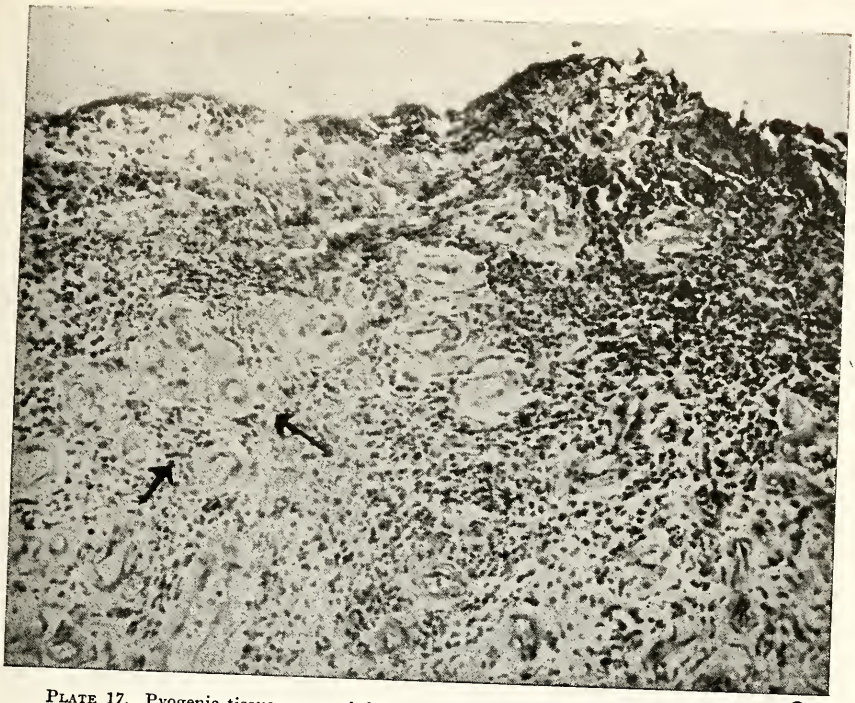


PLATE 17. Pyogenic tissue removed from the right bronchus of the same patient endoscopically. Low power. It was secondary to a pressure necrosis of the calcified gland. Note many new blood vessels. (Preparation and microscopic diagnosis by L. C. Todd, Charlotte).

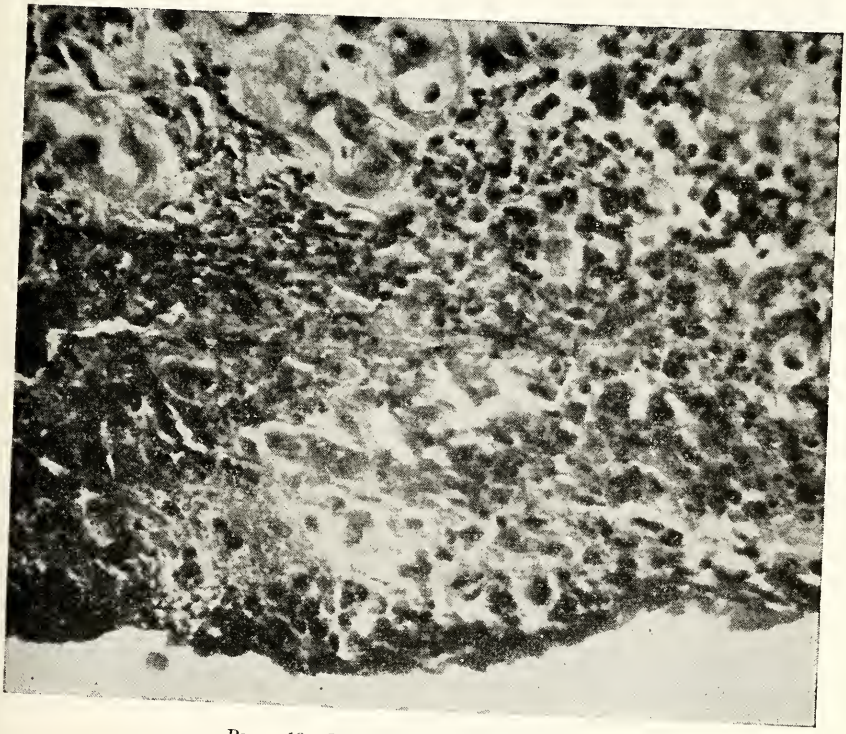


PLATE 18. Same specimen, high power.

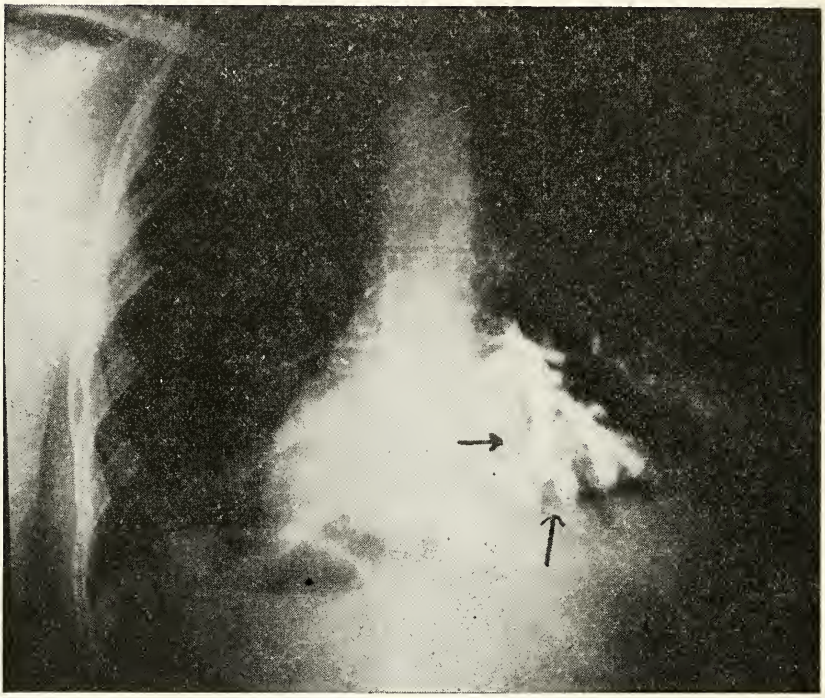


PLATE 19. Roentgenogram of young woman, age 30 years, after lung mapping. Note extensive bronchiectatic cavity on the right. Dark field examination of bronchoscopically aspirated pus showed Vincent's organisms. It is quite questionable from the size of the cavity whether arsenic alone will cure such a patient. We recommended preliminary bronchoscopic aspiration followed by phrenic avulsion on the affected side. (Case IX)

BIBLIOGRAPHY

1. Smith, D. T.: Etiology, Diagnosis and Medical Treatment of Chronic Bronchiectasis. Given before Tri-State Medical Society of the Carolinas and Virginia at Raleigh, North Carolina, February 15-17, 1932.

LEGAL ASPECTS OF OPHTHALMOLOGY AND OTO-LARYNGOLOGY REFERRING ONLY TO MALPRACTICE SUITS

Dr. Hicks

More than half a century ago Dr. Oliver Wendell Holmes was writing that "the profession has just been startled by a verdict against a physician ruinous in its amount,—enough to drive many a hard working young practitioner out of house and home—a verdict which leads to the fear that suits for malpractice may take the place of the panel game and child stealing as a means of extorting money. If the profession in this state, which claims a high standard of civilization, is to be crushed and ground beneath the upper millstone of the dearth of educational advantages and the lower millstone of ruinous penalties for what the ignorant ignorantly shall decide to be ignorance, all I can say is 'God save the Commonwealth of Massachusetts.' "[1]

The time was in more normal days of the recent past when any reputable, skillful physician and surgeon could count as a rule on immunity from criticism and attack. The laity would have considered it presumption and even blasphemy to bring suit against the leading medical or surgical practitioners and the patient that did dare to bring such a suit merely because he was dissatisfied with the end result of treatment would have had small chance of success.

The last few years have brought us economic and psychological developments one of the curious factors of which has been a change of attitude on the part of the public toward established institutions. The growing thirst for money, it seems, has been one of the important factors contributing to the disintegrations of former standards and the removal of wholesome inhibitions. The covetous eye has been turned toward those favored individuals who have financial means, and too frequently there have been successful experiments in appropriating the property of leaders by methods which in the past would hardly have been countenanced. And so the well-trained, ethical doctor is placed to a greater extent than ever before in the unenviable position of having to answer criticism, or even defending himself and his estate from actual law suits, if he fails to perform medical or surgical miracles, or even at times if he submits a bill which his patient does not want to pay.

The time has come when the medical profession individually and collectively must familiarize itself with the more important features involved in this suit problem. I am thoroughly convinced that the time has arrived when members of the medical profession must combine as a unit in defense. Almost without exception when the suit is brought against a physician, the physicians in the community should look upon it as a suit against the profession and should stand solidly in the defense of the brother practitioner. Unless we familiarize ourselves with the potential liability and act as a unit we cannot expect to very materially reduce the menace from its astounding proportions.

[1] The Writings of Oliver Wendell Holmes. Medical Essays, Vol. ix, pp. 349-50. Oliver Wendell Holmes.

At the outset we must remember that we are in a sense creatures of the law. That is to say, by legal methods we have been set apart as individuals with peculiar rights and privileges not enjoyed by any other group of citizens. This is the result of the efforts of the law to protect the public against quacks and charlatans. In most states the law describes as a medical practitioner one who is "able to diagnose, treat, operate or prescribe for any human disease, pain, injury, deformity or physical condition."[2] The law in setting up this protection for the public goes further on the same theory of protection of its citizenship by setting forth the duties of a physician to the public, specifically to his patient, standardizing to a large extent his limitations as well as his freedom.

Much has been written legally and otherwise as to the relationship existing between patient and doctor and much advice given in the art of practicing medicine. The ability of the practitioner to instill confidence and maintain the respect of his clientele is truly an art. Tact as priceless as it may be is difficult to define. "The principles governing the relationship of patient and physician must be sensed and felt rather than defined. The law has laid down only the more obvious rules. The doctor with fineness of mental perception will discern for himself the subtle character of the relationship, and the quality of its obligations. If his intuitive sense of what is true, right and proper does not lead him to avoid the more obvious pitfalls, no book can help him. Nevertheless, he should know the elementary things which the courts have said upon this subject."[3]

Let us see what the law requires of a physician in practice. The opinion of the New York Court of Appeals thirty-two years ago in the Pike case laid down the law on this subject. I think I am right in saying that practically every state in the union has adopted the principles laid down in this case. In North Carolina they are noted in the case of Nash versus Royster.[4] "A physician and surgeon, by taking charge of a case impliedly represents that he possesses, and the law places upon him the duty of possessing, that reasonable degree of learning and skill that is ordinarily possessed by physicians and surgeons in the locality where he practices, and which is ordinarily regarded by those conversant with the employment as necessary to qualify him to engage in the business of practicing medicine and surgery. Upon consenting to treat a patient, it becomes his duty to use reasonable care and diligence in the exercise of his skill and the application of his learning to accomplish the purpose for which he was employed. He is under the further obligation to use his best judgment in exercising his skill and applying his knowledge."[5]

The analysis of this rule imposes upon the physician three obligations: (1) That he possess that reasonable degree of learning and skill ordinarily possessed by physicians and surgeons in the locality where he practices. Reasonable and ordinary are the key words. He is not ex-

[2] New York Educational Law, sec. 1250.
[3] Courts and Doctors, p. 14. Lloyd Paul Stryker.
[4] Nash v. Royster, N. C. Records.
[5] Pike v. Honsinger, 155 N. Y. 201.

pected to have extraordinary learning or rare endowment, but that possessed by the average physician in the locality where he practices. In this connection it must be borne in mind that this rule does not apply to specialists. A specialist is one "who applies himself to the study and practice of some particular branch of his profession."[6] The specialist in turn is then required to possess the knowledge and ability of the average specialist.

(2) The physician is required to use his best judgment, not his guess or hasty surmise, not his snap judgment, but his best judgment. The law here is not requiring that he possess the best judgment of some other physician, but merely that he weigh the problem at hand and proceed by what is perhaps best called the rule of common sense. If a physician should after making the diagnosis of uncomplicated cataract decide that the best method of handling the case is enucleation, he certainly could not maintain that he had used his best judgment. If, however, he makes a diagnosis of infection of the antrum of Highmore, but decides contrary to the opinion of another physician that the sinus should not be opened, certainly no one could successfully attack his judgment legally.

(3) "The physician must 'keep abreast of the times' and must follow the 'approved methods in general use.' He must know what is going on in medicine, what new discoveries have been made, what old opinions or conclusions have been discarded. Medical and scientific journals, text books, lecture courses, meetings of his county and state medical societies, conferences with especially equipped physicians, these and other means are at his disposal and he will fail to use them at his peril."[7] This requirement of the law is, of course, arbitrary and could hardly ever be successfully maintained except in extreme cases. In any event the failure of the doctor to carry out this requirement would have to be proved by expert witnesses in the specific case.

The patient also has a duty to the doctor. He certainly must be cooperative and must not fail to follow the reasonable and proper instructions outlined by his physicians. This duty is best expressed in the case of Becker versus Janinski.[8] Writes the court: "All the obligation is not upon the physician, but the patient also has his duties to discharge. In particular, the patient must obey the orders and follow the directions of his physicians, and if he disobeys such orders or neglects such directions, he cannot hold the physician for the consequences of such disobedience or neglect. Accordingly, I charge you that if you find that the injury of which the plaintiff complains was the effect of her carelessness or neglect alone or was the effect of the defendant's negligence or want of skill in combination and coöperation with her own carelessness and neglect she cannot recover. Her contributory negligence would defeat the action."[9] The failure of a patient to have X-ray pictures taken or refuse an operation or hospital care or a refusal to return for treatments as directed are done so at his own hazard and if injury result, the

[6] 48 Corpus Juris, 1116.
[7] Courts and Doctors, p. 20. Lloyd Paul Stryker.
[8] Becker v. Janinski, 27 Abb. N. C. (N. Y.) 45.
[9] Becker v. Janinski, 27 Abb. N. C. (N. Y.) 45.

doctor is not liable.[10] If, however, an injury is caused by the physician's negligence, subsequent negligence of the patient is not a defense for the negligence of the physician.[11]

The question of confidential communications enters to a certain extent in this problem of malpractice suits. All of us are familiar with this standard public policy, this professional privilege. It is frequently imperative that a patient be able to speak freely and openly to a doctor in order that he might be properly treated. On the other hand, this doctrine cannot seal the lips of the physician if there is a question of crime involved, nor is his voice stayed if the patient seeks to sue the doctor in whom he has confided, or some other doctor, concerning the malady which was the subject of his confidential communications. The statute is a shield and not a sword.

In a malpractice suit there must always be certain definite elements: (1) A relationship of physician and patient must have existed; (2) that the physician departed from his duty to the patient; (3) that injury resulted from this departure. If the plaintiff failed to show that either of these elements existed, the defendant is entitled to a non-suit. A doctor like any other citizen is a free agent. He can accept or reject anyone as a patient without reason. He must contract to accept a patient, but this contract need not be in writing. Any conduct by the parties indicating that one is the patient of the other is sufficient. The amount of fee does not enter. The fact that a patient is treated by the doctor in a charity clinic does not relieve him of liability. The duty of the physician has already been outlined. If he departs from this duty and injury results, he is liable. The law requires that he not only possess ordinary skill and judgment, but that he use it.

In this connection the law is very definite in its position that a doctor is not a guarantor of cures. It is also essential to prove that the patient has been injured because of the negligence of the doctor. The fact that an unsatisfactory result is had is no proof that ordinary skill and judgment were not used. On the contrary it is necessary to prove that the injury would not have been present had the physician not been guilty of negligence or want of skill. From a practical standpoint cases are almost unheard of in which the plaintiff attempts to prove that the doctor did not possess the requisite skill or did not use his best judgment. The attempt is made rather to prove that the physician failed to employ reasonable care and diligence in that he did not follow the approved and proper practice.

From the foregoing discussion it now becomes apparent that in order to prove this want of care and attention that only those qualified to know what the proper care and attention is are competent to testify except in isolated instances. Expert testimony is necessary before a case can be made out. The exception to this is in the doctrine of "res ipsa loquitur," which interpreted means "the results speak for themselves."

Judge Taft's opinion has been largely quoted and gives much solace to one in a dilemma as to what his duty might be. "Judge Taft at that time was sitting as an United States Circuit Court Judge of Ohio. In

[10] Jones v. Angell, 95 Ind. 376.
[11] Carpenter v. Blake, 75 N. Y. 12.

the Ewing case the plaintiff who was suffering from a cataract of her right eye consulted a physician specializing in eye diseases. Subsequently she developed glaucoma and her physician operated for the relief of this condition. The sight of her right eye was lost and the vision of the left eye then became impaired. She sued her doctor for malpractice, and offered no expert testimony to establish that the doctor's negligence did in fact cause the injury. She claimed that the facts spoke for themselves,—"res ipsa loquitur." In directing a verdict in favor of the physician, Judge Taft said: 'Before the plaintiff can recover she must show by affirmative evidence—first, that defendant was unskillful or negligent and second, that his want of skill or care caused injury to the plaintiff. If either element is lacking in her proof she has presented no case for the consideration of the jury. The naked facts that defendant performed an operation on her eye, and that pain followed, and that subsequently the eye was in such bad condition that it had to be extracted, establish neither the neglect and unskillfulness of the treatment, nor the causal connection between it and the unfortunate event. A physician is not a warrantor of cures. If the maxim "res ipsa loquitur" were applicable to a case like this and a failure to cure were held to be evidence, however slight, of negligence on the part of the physician or surgeon causing the bad result, few could be courageous enough to practice the healing art, for they would have to assume financial liability for nearly all the ills that flesh is heir to.' "[12] "In order to sustain the plaintiff's burden of proof, it is not enough to show the injury, together with the expert opinion that it might have occurred from negligence and many other causes. Such evidence has no tendency to show that negligence did cause the injury. When a plaintiff produces evidence that is consistent with an hypothesis that the defendant is not negligent and also with one that he is, his proof tends to establish neither."[13]

The doctrine of "res ipsa loquitur" has been illustrated by the Iowa Court in the following manner. "If," says the Court, "a surgeon undertaking to remove a tumor from a person's scalp, let his knife slip and cuts off his patient's ear, or if he undertakes to stitch a wound and by an awkward move thrusts his needle into the patient's eye, it does not need scientific knowledge or training to understand that ordinarily speaking such results are unnecessary and are not to be anticipated if reasonable care be exercised by the operator."[14]

From this opinion, however, it must not be construed that, for instance, the breaking of a needle during an operation constitutes negligence. Occasionally those in our specialty are confronted with suits arising from X-ray burns. The rule of "res ipsa loquitur" does not apply in these cases. It becomes necessary, however, for the physician to show by expert testimony that his machine was in good order and that the proper dosage was applied. It must be remembered that many

[12] Courts and Doctors, p. 60. Ewing v. Goode, 78 Fed. 442, 443. Lloyd Paul Stryker.

[13] Ewing v. Goode, 78 Fed. 442.

[14] Evans v. Roberts, 172 Iowa 653.

patients have an idiosyncrasy to the X-ray and this condition cannot be anticipated until the unfavorable result is apparent.

From the foregoing it then becomes clear that in the overwhelming majority of malpractice cases a plaintiff cannot make out his case without expert testimony and that a bad result does not import negligence. In instances where foreign material is left in the body following an operation the defendant is put to proof, but he can combat this evidence successfully if he can show that the retention of the foreign body did not result from the defendant's departure from approved methods.

The question arises frequently in the minds of physicians as to what their legal responsibility is in the case of a patient in hospitals. Courts all over the country have held that if an independent institution through its agents, commonly internes and nurses, is negligent to his patient, he himself is in no way liable. This is not true, however, if he is owner of the institution and the internes and nurses are under his employ. Cases have commonly arisen out of alleged negligence on the part of the hospital anesthetist. Here again the physician is not liable.

Many cases have arisen out of the contention that operations were performed without the consent of the patient or the parent. It becomes necessary for the physician to get the consent of the parent before operating upon a minor except in instances where the parent is not available and the operation is done to save the life of the minor, or where operation is done to relieve a condition that would have become much worse by waiting until the parent was available. The Texas Supreme Court applied this rule unfavorably to the defendant in an unusual instance. A relative of a minor child during the absence of the parents presented the child in the office of the defendant and the diagnosis of diseased tonsils and adenoids was made. Knowing that the attending lady was not a parent, the doctor proceeded to remove the tonsils and adenoids and under the anesthetic the child died. It also becomes quite dangerous for a physician to operate differently from the way in which he has outlined to the patient prior to the operation.[15]

The Supreme Court affirmed a judgment of $1000 against a physician who had been employed to straighten the nasal septum, but after the patient was under the anesthetic, the doctor proceeded to remove the tonsils and adenoids.

In another case it appears that the physician was employed to do a mastoid operation and after the patient was under the anesthetic, it appeared that the mastoid not in question was the worst one and he proceeded to operate this without the consent of the patient. For this the court held that he was liable.

A few cases of interest involving our specialty are herewith referred to. In the case of Schoening v. Smith[16] there was a paralysis of the seventh nerve following a mastoid operation. There was no expert evidence to show that the operation was done negligently and it was shown that infection which was admitted to be present commonly caused

[15] Unauthorized Removal of Tonsils. Hively v. Higgs (Ore.), 253 P. 353. 89: 718 (Aug. 27) 1927.

[16] Malpractice: Affirmative Proof of Negligence Necessary. Schoening v. Smith (N. D.), 231 N. W. 278. 96: 1432 (Apr. 25) 1931.

such a paralysis. The court held that the coincidence, paralysis with the operation, is not proof and an unsatisfactory or bad result does not prove negligence.

In the case of Mandelbaum v. Weil[17] the surgeon was sued and the evidence was that a hypodermic needle broke during a tonsils operation and that a part of the needle could not be recovered from the plaintiff's body and that the physician continued the operation and made no effort to remove the broken needle until several hours afterwards and that efforts to remove it were unsuccessful. In this case the court held that there was not sufficient evidence to warrant a finding of malpractice.

In the case of Elam's Administrator v. Bodkin[18] the patient died following an operation for the removal of supposedly inflamed tonsils. The death was fairly sudden and the physician had left town. The patient was treated by other physicians. The court held that there was no evidence of negligence and affirmed the lower court in its non-suit.

In the case of Covington v. Wyatt[19] it was alleged that the physician used a solution of silver nitrate in an infant's eyes and that the solution was much too strong causing damage to the infant. The court held that if the physician had failed to use silver nitrate, he would be liable under the public laws, but that he was not required to instill exactly one per cent and that if he used a different percentage and was acting in good faith, he was not liable. The fact that he used the silver nitrate furnished him by the institution, and it later developed that this solution was much too strong, does not hold him liable.

In the case of Henley v. Mason[20] the court ruled that unless the doctrine of "res ipsa loquitur" is clearly applicable the measure of skill exercised by a physician or surgeon is to be judged by testimony of medical experts. In this case during an operation for the removal of tonsils there were several teeth lost. The evidence was that after the mouth gag was in place and the ether spray in use, there was an unusual biting down on the gag and an unusual contraction of the muscles which could not have been foretold. It was an instance of the personal equation in practice and was not due to negligence.

In the case of DeSham v. Taugner[21] the doctor punctured the left antrum and it later developed that it was the frontal sinus that was infected and not the antrum. In his efforts to puncture the frontal he was unsuccessful, fracturing the bone and producing a long continued outside inflammation in and around the orbit which was treated by another physician requiring operation. In the testimony the second physician could not except by conjecture say that the first physician's operation was done improperly and that the sequestra of bone removed subse-

[17] Breaking of Hypodermic Needle in Tonsillectomy. Mandelbaum v. Weil. (N. Y.), 203 N. Y. S. 289. 83: 709 (Aug. 30) 1924.

[18] Removal of Acute Inflamed Tonsil. Elam's Adm'r. v. Bodkin (Ky.), 13 S. W. (2d) 507. 93: 1017 (Sept. 28) 1929.

[19] Infant's Eyes Injured by Silver Nitrate Solution. Covington v. Wyatt (N. C.), 145 S. E. 673. 93: 408 (Aug. 3) 1929.

[20] Loss of Teeth During Tonsillectomy. Henley v. Mason (Va.), 153 S. E. 653. 96: 1646 (May 9).

[21] Infected Maxillary Sinus: Fracture of Walls; Evidence of Malpractice Inadequate. DeSham v. Taugher (Wis.), 198 N. W. 268. 83: 1101 (Oct. 4) 1924.

quently was due to the fracture and not infection. There was an undisputed infection present and the physician was held not liable.

In the case of Hurst v. Reeder[22] a piece of gauze was left in the nasal passage for one week following a tonsil operation. In this case expert testimony did show that such was the fact and that it was improper. The verdict against the physician for $500 was sustained.

In the case of Goode v. Lothrop[23] a physician was removing a lump from the nose and shortening the nose. Infection resulted and weeks after a splinter of bone was removed through an incision made to relieve the infection. In the testimony it was shown that a splinter of bone might become separated from bones cut in two or affected by the operation and it was shown further by expert testimony that it was impossible to remove all particles of bone although every effort was used to do so. The court held that the burden of proving negligence was upon the plaintiff and the non-suit was sustained.

In the case of Langford v. Kosterlitz[24] the verdict of $15,000 was affirmed. In this case the physician was attempting to destroy the nasal ganglia by injections with alcohol. The optic nerve was injected with alcohol and blindness followed immediately. There was definite expert evidence to show negligence in this case. Time does not permit the citing of other interesting cases, but they are contained in the references in this paper.

The problem constantly arises with ophthalmologists as to the possibility of sympathetic ophthalmia and this has been the ground for a good many suits. Dr. Edward Jackson's advice on this point should be well taken. "Sympathetic inflammation leading to blindness of the second eye, after the loss of one eye by injury, is so grave an occurrence as to have given rise to many actions for malpractice, generally without the slightest reasonable foundation. But no eye lost by traumatism is safe from the danger of exciting this disease, and in every case the patient or his proper representative or guardian should be warned that there is this danger, and that the removal of the eye is the best means of avoiding it. The responsibility for the retention of the eye should then be clearly thrown upon its possessor. Having attended to this, even though the sight of the injured eye is not entirely destroyed, the surgeon can frankly state his opinion of the probabilities of the particular case. If the injury, even though apparently slight, included the penetration of the sclera, ciliary body, or vitreous, or the lodgment of a foreign body within the eyeball, the danger of sympathetic disease should be indicated.

"In numerous cases suit has been brought on account of the removal of the eyeball, the claim being that this was not necessary or justified by the severity of the injury. Frequently, when a foreign body is lodged within the eye, the patient regards the injury as comparatively trifling.

[22] Leaving Gauze in Nasal Passage After Operation. Hurst v. Reeder (Ind.), 157 N. E. 101. 89: 2220 (Dec. 24) 1927.

[23] Malpractice: Burden of Proof. Goode v. Lothrop (Mass.), 165 N. E. 688. 93: 1834 (Dec. 7) 1929.

[24] Blindness Following Attempted Injection into Nasal Ganglion. Langford v. Kosterlitz (Calif.), 290 P. 80. 97: 565 (Aug. 22) 1931.

The eye may still retain full vision, and yet ultimate blindness, with great danger to the second eye, may be clearly evident to the surgeon from the first. Against such actions the proper safeguard is to obtain, in the presence of witnesses, the full consent of the patient or his guardian before proceeding to remove the eye, and to preserve notes of the fact which justify the removal."[25]

The question of abandonment of a patient sometimes arises. It is evident, of course, that when a physician is dismissed he is obligated to give up the case. He has no right to discharge a case or relieve himself from responsibility without first giving his patient notice sufficient to enable him to procure other medical attendance.

In going over the literature on the problem of malpractice suits it is commonly the opinion that the average doctor makes a very poor witness on the stand. Mr. Lloyd Paul Stryker gives sage advice to physicians about to be sworn in as witnesses. Personally I advise that a physician should be careful always to tell "the truth, the whole truth and nothing but the truth." It generally becomes apparent to the court when a witness is following this procedure. Come prepared by refreshing your recollection as to names, places, figures and dates. Bring your records that you may refresh your memory while on the stand. Do not be afraid. The honest witness need not fear. Look the lawyer squarely in the eye; also look into the eyes of as many jurors as you can. No one likes a coward. Be natural in your dress and demeanor. Speak naturally and clearly. Be modest, for nothing is more impressive than modesty. Be frank. Do not hesitate to admit a fact because you think it hurts you. Be attentive to the questions and before you answer be sure you have full understanding. Do not volunteer. The witness is not called upon to make a speech, but to answer questions. Do not assume the rôle of advocate; leave that to the counsel. Do not lose your temper. If you are asked a question which appears insulting, ignore the insult and conserve your mental resources for answering it. We must remember that whom the gods would destroy, they first make mad. Be courteous no matter how absurd the question. Be sure that your voice is always clear and heard by the court. Do not manifest nervousness by certain mannerisms such as playing with a watch, or biting of the lips.

In conclusion allow me to suggest some things which may be of help in avoiding and successfully combating malpractice suits. Except for completeness it is unnecessary to mention the importance of constant allegiance to duty, realizing at all times that our working material is the human being. Let our records be complete. Be careful not to promise too much from the operation or treatments. Let us keep abreast with the advancements in our profession at all times. Consultation should not be avoided, but encouraged. Do not use instruments of precision about which we are not entirely familiar. When you find that action has been brought, defend your position to the bitter end. Never entertain compromise. Acquaint your fellow practitioners with the facts in

[25] Legal Medicine and Toxicology. Peterson, F., Haines, W. S., and Webster, R. W., pp. 1068-1077. Medicolegal Aspects of Vision and Audition, by Edward Jackson and Edward V. L. Brown.

the case and solicit their coöperation. I am of the opinion that when the profession recognizes this problem as one thrusting at its own heart blood and becomes familiar with the legal responsibilities, malpractice suits in North Carolina will be a matter of history.

ALLERGIC CONDITIONS IN RHINOLARYNGOLOGY

M. E. Bizzell, Goldsboro

The ever increasing number of individuals suffering with what is known today as allergic conditions, has grown until this study is now of clinical interest, and importance in every branch of medicine. It is for this reason that I am presenting such a vexed and difficult subject to you this evening.

It is merely my desire to open a discussion in order that we may better understand some of the allergic problems we have so often confronting us. In caring for these individuals, especially those suffering with asthma and hay fever, the rhinolaryngologist has always been and is today a very important figure; it is in his hands sooner or later that these individuals usually fall. Naturally this is true for three reasons:

1. Because it is in this field that most of these individuals experience most of their discomfort.
2. Because most of these conditions present physical signs of pathology in the nose, throat and sinuses.
3. Because the internist in many cases, with the physical findings of an upper respiratory infection, or with his knowledge of the frequency of upper respiratory infections, refer these cases to the rhinolaryngologist for cure.

The rhinolaryngologists have accepted in the past, to a large degree, the responsibility of these individuals. Nasal and oral surgery in the majority of these cases has been disappointing. History reveals that many tonsils, polyps, septums, ethmoids, turbinates, etc., have been sacrificed with no benefit, or if any, only temporary in character. It, therefore, seems necessary in handling these types of cases to consider methods of attack other than just the surgical. Those who have given this subject a great deal of study have concluded that only time, patience, study and coöperation between the internist, allergist and rhinolaryngologist can hope to benefit these chronic sufferers and better results in the future. In order for the rhinolaryngologist to coöperate and steer these cases along the proper channels, for diagnosis and treatment, it has become necessary that he be familiar, not only with the possibilities of his limited field, but also with those of the other branches of medicine.

DIAGNOSIS

To make a diagnosis of these conditions other than those due to serums and drugs that we administer ourselves, is very difficult, and oftentimes impossible. By a careful and detailed study, however, much can be learned, and even though a specific diagnosis is not made, the patient can often be benefited.

Skin Tests: In the past and to some extent today, I do not feel a hesitancy in saying that too much importance has been awarded skin

tests in the diagnosis of these conditions. They are disappointing even in the best hands. Tobey (1), of Boston, says that they should be used with only two views in mind:

1. To confirm a diagnosis as suggested by history.
2. To point out other possibilities.

Kolmer (2), of Philadelphia, pointed out that the skin may be sensitive to one or more substances when the mucosa of the respiratory or gastro-intestinal tract is not, and vice versa, the respiratory and gastro-intestinal tract may be sensitive when the skin is not. Personally, I have found them of such little help I have discontinued their use, except as a last resort, unless history suggests several possibilities in which I think by testing for these possibilities I can be assisted. Their use should only be practiced by one especially trained in the use of them, and then accepted only on a basis of common sense.

I recently had a patient suffering with a perennial vasomotor rhinitis. He had been subjected to several nasal operations with no benefit. He had been decorated with all the skin tests, and from these received the diagnosis of "duck feathers." His history revealed that the affection began six years ago, that he was a chronic alcoholic, very nervous and fatigued. On discontinuing the alcohol and having him rest, his nasal condition cleared, and has remained clear for the past year without any other change in his mode of living. I am, therefore, confident "duck feathers" had no bearing on his condition, and only mention this case as one among many such instances when skin tests cannot be depended upon.

History Taking: History taking is no doubt, by far, the most important means of arriving at a diagnosis. The patient can oftentimes tell you within a few possibilities, the specific cause, or something that is influencing the condition.

Heredity, according to many, plays a very important rôle in bringing on these conditions. Smith (3), of Cleveland, in a recent survey of 314 cases of bronchial asthma was able to get a positive allergic family history in 48.4% of his cases. The inheritance, however, is thought by many, not to be that of a true allergic state, in which the cells are already sensitized at birth but the inheritance from allergic parents of an increased capacity for making allergic antibodies, and the inheritance of tissues especially sensitive to sensitization and to the effect of allergic shock.

If the above is true all allergies are acquired and the so-called natural allergy is only those few individuals that inherit the above qualities in exaggerated form from their parents. On this basis, Kolmer (2), and others have emphasized the importance of a family history, regarding asthma, angio-neurotic edema, etc., before administering any foreign serum to a patient.

When a patient gives a family history of allergy, all precautions should be taken, and a thorough knowledge of the sensitiveness of the patient to the serum to be administered should be known before its administration. Desensitization should be practiced in suspicious cases. The same care might be applied before the administration of certain drugs, for instance, cocaine, arsenic, quinine, etc., especially if these

drugs are to be used in large amounts. A family history might at least put us on our guard in the above types of cases. It is also important in differentiating true allergic conditions from those due to bacteria and other causes.

Seasonal and Perennial Affections: It is important to know whether the affection is seasonal or perennial. In a definite seasonal affection, as is often encountered in hay fever and bronchial asthma, pollens are to be suspected. When pollens are suspected a thorough knowledge of the wind borne pollens in relation to their abundance should be known for the season in which the affection begins. Seasonal foods are less likely to be the cause, but should be investigated, if history points to them. These types of cases are truly allergic and should fall in the hands of the allergist for diagnosis and treatment, except for the comfort the rhinolaryngologist can render these cases during their attacks by conservative measures.

In perennial affections the problem of diagnosis is much more difficult. The rhinolaryngologist and the internist play a much more important part. In these cases we not only have to consider pollens, but also protein foods, organic dust, toilet articles, drugs, bacteria and general health.

In considering foods it is important to know at what age the affection began. By knowing this it can be learned whether the simple foods of childhood, for instance, milk, eggs, cereals, etc., are responsible, or if it is one of the forms of food taken in later life, for instance, strawberries and fish. The older the patient is in developing an allergic condition, the less likely it is to be a food cause. It is important too, to investigate the likelihood of the patient getting the food protein through inhalation; for instance, the baker, housewife and grain merchant, who in their occupations are constantly inhaling various types of flour and ground grains. It is believed, too, that allergy may rarely occur from certain carbohydrates, but it is thought that they are of a carbohydrate and protein nature.

In organic dust look for animal danders and cereal grain dust. When perfumes, face creams, toothpaste, soaps and various face powders are suspected, investigate for orris root, which is used in their making. How drugs produce urticaria, angioneurotic edema, etc., is not known, but it is believed that they alter the chemistry of the body proteins to produce a foreign protein which acts as an exciting agent.

Bacteria: The importance of bacteria in relation to allergic conditions is a much discussed question. It is generally conceded today that bacteria growing in the upper and lower respiratory tracts, principally the pneumococcus, streptococcus and staphylococcus either directly produce allergic reactions by sensitization or indirectly by retarding general health. Their importance are especially significant in perennial affections as in asthmatic bronchitis, some eczematous conditions and perennial hay fever. It is therefore important that these patients be subjected to a careful rhinolaryngological and dental examination. The rhinolaryngologist is called on in these cases to differentiate between conditions of infectious nature as those arising from sinus infections and infected tonsils, and those of non-infectious nature, as true al-

lergy, and those arising from mechanical disturbances, such as a deflected septum or a large turbinate, which might be producing a pressure reflex. This differentiation is more difficult than is generally appreciated by the profession as a whole. A nasal obstruction, a cloudy sinus, nor the presence of polyps signifies an infection until it has been proven.

In order to differentiate these conditions a careful sinus history and a general survey of the patient's general health is important. The character of the nasal mucous membrane is important, a pale edematous glistening and boggy mucous membrane with or without polyps is suggestive of allergy; whereas, a red and inflammed mucous membrane suggests infection.

The character of the nasal secretion is important. A thin, clear, watery secretion with little or no irritating effect on the mucous membrane suggest allergy; whereas a thick, yellowish or greenish, often blood streaked secretion producing crust formations and inflammation suggests infection. In between these there is often found in allergic conditions a thick white mucopurulent secretion which on culture reveals no organisms. This type of secretion is usually found in the presence of nasal polyps and the polypoid involvement of one or both maxillary sinuses.

The laboratory can be of assistance in this differentiation. I have made it a practice to culture and make a direct smear of all maxillary washings in which there is any suspicion of their involvement and of allergy. It has been a surprise to me to find the frequency in which no organisms can be demonstrated, even though pus is present. A cell count of this pus has shown a slight increase in Eosinophiles ranging from 5 to 10%. An increase of Eosinophiles in the blood and also in the nasal and sinus secretions is a point which is believed by some today to be important in diagnosing allergic conditions. I am unable in my limited number of cases to state any definite opinion as to their importance. I feel, however, in any case in which no definite organisms can be demonstrated allergy should be suspected and treated conservatively. Blood counts and roentgenograms of the sinuses should be made and as all laboratory work studied with the clinical findings.

General Health: A detailed examination by an internist is important in these cases. Whether fatigue, constipation, nervousness or endocrine disturbances can cause a true allergic condition or not, I do not know. I feel, however, that a derangement in any general condition can aggravate these cases. I have seen two cases of asthmatic bronchitis completely relieved on a rest cure similar to that outlined for a patient suffering with tuberculosis. I remember a physician in my internship who had an indican test made on every case of asthma that came under his observation, and it was surprising to see the number in which indican was present in large amounts, and upon clearing it up, how some of the patients improved without any further medication. I have a patient under observation at present, suffering with a perennial vasomotor rhinitis that I saw for the first time two months ago. Her history revealed that she had suffered with what she termed a continuous cold for the past six years. Nasal operations and treatment had been of no avail. Recent tinnitis brought her to me. I referred her for

a general examination and received a report as follows: Exophthalmic goiter, metabolic reading plus 32. Advise operation. Whether the proper teatment of her thyroid will benefit her nasal condition remains to be seen. Thyroid disturbances, calcium deficiency and other endocrine disturbances in relation to allergic conditions is a subject of discussion today.

Jackson's statement, "All who wheeze have not asthma." Diphtheria, foreign bodies, mechanical obstructions, etc., which might effect the respiratory tract should therefore be kept in mind.

Treatment: Treatment of these conditions requires the same coöperation that is required in arriving at a diagnosis. In considering animal danders, drugs, orris root, foods, pollens, etc., the allergist or one familiar with this field should accept the responsibility of their treatment. Avoidance in these types of cases is by far the most effective treatment when it can be practiced. Specific protein therapy which is based on desensitization may be of value when avoidance cannot be practiced, and when the specific exciting agent is known.

The internist must be alive to the possibilities of his field and treat them accordingly.

Non-specific protein therapy, for instance, milk injections, autogenous vaccines, stock vaccines, and peptone may be used with benefit in obscure cases and in those which are suspicious of being aggravated by bacteria.

Tobey (1) says the profession as a whole is not alive to the benefit that may arise from bronchoscopy as to both diagnosis and treatment. He says many patients suffering from chronic asthma with super-imposed infection of the bronchial tree and perhaps small areas of bronchiectasis are greatly relieved by periodic aspirations of the thick tenacious mucus and pus.

Surgical treatment falls mainly in the hands of the rhinolaryngologist. In 1872 Voltolini (4), an eminent physician of his time reported eleven cases of asthma relieved by the removal of nasal polyps. The news spread and for thirty odd years nasal and oral surgery was performed enthusiastically in these cases. For the past thirty years, however, since the birth of allergy and since so many of these cases have been benefited but little as to cure the conservative rhinolaryngologist has become skeptical in offering cures by such procedures.

When there is any suspicion of allergy, especially of asthma and hay fever, the rhinolaryngologist should be cautious regardless of how many polyps there is in the nose or how cloudy the maxillary sinuses may be or how bad the tonsils may look. If surgery is decided best, do not promise these patients a cure, promise them only better breathing space and possibly by removing the seat of poison that it may be of some benefit to them. Also tell your allergy cases in which polyps are present the likelihood of their return unless the cause can be found and controlled.

Explain the condition to the patient. Refer her to the internist and allergist for a complete study and work in harmony with them. I am not condemning nasal and oral surgery in these cases, for I am confi-

dent it has a place. I feel, however, that a careful and detailed study of these cases in all branches of medicine will be of great help to all.

These conditions are still problems; only time, patience, study and coöperation can help these chronic sufferers.

BIBLIOGRAPHY

1. Tobey, H. G., Allergy, General Principles of Treatment. Arc. Otolaryng. 12:813 (Dec.) 1930.

2. Kolmer, J. A., The General Principles of Allergy. Arch. Otolaryng. 12:804 (Dec.) 1930.

3. Smith, W. O., Bronchial Asthma. Arch. Otolaryng. 15:165 (Feb.) 1932.

4. Voltolini, Practitioner 123:272 (Oct.) 1929; Die Anwendung der Galvanokaustic, ed. 2, Vienna, Wilhelm Braumuller, 1871-1872, pp. 246 and 312.

Dr. M. R. Gibson (Raleigh): Mr. Chairman. It is my opinion the reason for poor results by those who make a routine study of their cases are frequently due to failure of patients being properly impressed with the importance of carrying out instructions given.

The cause of the allergic condition should be told the patient if an adult, or his parents if a child, whether it be a protein or pollen, and the importance of refraining from the protein or staying away from the pollen that has caused his trouble should be emphasized, for without this precaution being taken, treatment will be worthless. This impression should be made when the examination is begun, and it should be emphasized that failure to carry out instructions will most certainly end with failure to improve.

To one who has a routine for diagnosis, the finding of the cause in the majority of cases is not difficult, but to get results without the full coöperation of the patient is impossible.

It is therefore my opinion that the most important thing to do is to secure the confidence and coöperation of your patient.

Dr. James P. Matheson (Charlotte): There is only one practical point that has come up. That is, if you make an X-ray of sinuses during one of these acute allergic attacks, you will frequently find the sinuses look like they are all full of polyps. One is liable to do an antrum operation for a case thinking that you have polyps from the X-ray; whereas if you can wait till these symptoms subside and probably at a later date take an X-ray you will be rather surprised to find that your antrum is in very good condition and no polyps there at all.

I have seen that condition several times. One of my friends, a physician, I though unquestionably ought to have an antrum operation because it looked like the whole antrum cavity was filled. It turned out to be a swollen mucosa. Three months later he came in to consider the operation. I said, "I guess we had better take another plate on this." The plate was perfectly good.

ROUTINE DIAGNOSIS PROCEDURE IN OTO-LARYNGOLOGY

By C. C. Swann, M.D., Asheville, N. C.

In choosing my subject, I did so with the desire to bring to you knowledge of some of the diagnostic methods employed by the late Dr. H. H. Briggs, of Asheville.

As you know, Dr. Briggs was a pioneer in our specialty in this state, a man of national reputation, and I believe his routine in examining patients will be of interest to all of you.

It is needless to say that a careful record was kept on all patients, including a preliminary history taken by the nurse in the office and supplemented always by Dr. Briggs after careful questioning relative to the particular ailment for which the patient sought treatment.

A Dictaphone was placed in each treatment room and used by Dr. Briggs for history taking and recording his findings at examination. When once asked what he considered to be the secret of his success, Dr. Briggs replied, "The Dictaphone." Each new patient was allotted fifteen minutes time on the appointment sheet, and in all sinus cases where considerable involvement was suspected, they were advised that it would be necessary to come in on several successive days for observation.

After a preliminary talk of a few minutes, the patient was seated in the treatment chair, a careful inspection was made of gums and teeth; gums usually being massaged with wood tongue depressor for evidence of pyorrhea, and suspicion of, or disease of teeth was noted on the chart, naming the particular tooth involved. Examination of tonsils in nearly all adults consisted in inspection with use of pillor retractor in exposing entire tonsil, and massage with a firm cotton applicator to determine if pus could be expressed. Observation of the rhinopharynx and epipharynx was made with post-nasal mirror, and in all adults a quick inspection was made of the larynx. Attention was then directed to the nose, a careful observation being made in the natural state without the use of any drug to shrink tissues; areation throughout, condition of mucus membrane, septal deformity, presence of hypertrophies, polyps or free exudate and its location being noted. Transillumination of the large sinuses was then done, using the Briggs transilluminator, with a careful inspection and comparison of the medial angle of each frontal; any haziness of the medial angle, with positive findings in the sinuses below, being suggestive of previous or present pathology. The antra were then studied by transillumination, compared, and diagnosed as clear, opaque, slightly, moderately, or very dark. Dr. Briggs has stated that if he had to choose between the X-ray and transilluminator, he would unreservedly select the latter; however, he modified his statement by saying that the X-ray is invaluable in the finer details of diagnosis, and only with the X-ray would it be possible to diagnose many cases of Ethmoid and Sphenoid involvement.

The patient was instructed to blow from the nose any accumulation of exudate, and any remaining was removed by suction; the mucus membrane throughout on each side was then shrunk with 5% cocaine and about eight or ten minutes allowed for thorough shrinkage to take place.

The ears were now inspected, noting by Dictaphone the general appearance of the drum, any abnormality present, and in the event a chronic discharge was evident which had failed to clear up despite persistent treatment, a smear was taken for microscopical study. A rapid hearing test was made on each ear, using the C and C 5 tuning forks; if there was an elevation for low tones, or the patient had given symptoms referable to the middle ear, catheterization of the eustachian tube was done; if successful, hearing was again tested with the low tone forks. When unable to inflate the middle ear, the eustachian tube orifices were observed under direct inspection with the nasopharyngoscope, the patient being requested to yawn or swallow and the movement of the orifice, with the presence of any adhesions noted. Furthermore, when hearing was deficient, a complete hearing test was done and recorded on a special sheet, dated and attached to the chart. Palpation of the glands in the neck, with special attention to the posterior cervical and submaxillarys' was done on all cases.

About ten minutes were usually taken up in examination of the ears, or else in talking to the patient and the examiner again directed his attention to the nasal passages. Usually adequate shrinkage had occurred and any free pus found was carefully wiped away and, if possible, its source determined and recorded. Polyps, tumors or hypertrophies were palpated with silver probe to determine mobility and consistency. In the event free pus was found in the middle meatus and the antrum was suspicious, an antral irrigation was done, using sterile saline, and in about fifty per cent of the cases the cannula was forced through the natural opening; when unsuccessful, puncture through the inferior meatus was made with a No. 16 Luer needle, aspiration first done, then a few cc of sterile saline injected into the antrum and withdrawn into a 10 cc Luer syringle. If the antrum contained pus, irrigation was done, the nose cleansed, and the patient made to wait fifteen or twenty minutes to find if pus reappeared in the middle meatus. Oftimes when the injected saline returned clear from the antrum and no other focus could be found, a cytologic study was made. If, after cleansing the nose, pus reappeared posteriorly above the middle turbinate, an attempt was made to pass a cannula into the sphenoidal opening; if successful, aspiration was done, a small amount of saline injected and withdrawn for study; frequently an X-ray was made with the cannula in place.

After examination the first day, unless the sinuses were entirely negative, the patient was referred for an X-ray study; antero-posterior stereoscopics and one chin-vertex position being requested. Patients with sinus involvement were requested to return on the following day for further observation. At these subsequent visits some small treatment was instituted, though the real purpose for their return was to complete the examination and arrive at a plan of treatment. In dealing with sinus cases where such a large part of the treatment is surgical, it is essential to determine the exact location of the pathology before going in to operate. The appearance of the tissues of the nasal passages may undergo a decided change within a short time, and most of you have seen cases of hyperesthetic or intumescent rhinitis in acute distress, with large boggy turbinates covered with a catarrheal exudate, sinuses

cloudy to transillumination and resembling a pansinusitis, clear up remarkably in a day or two without treatment; the same holds true for many cases presenting allergic phenomina, where an antrum may be nearly filled with polyps one day and twenty-four hours later present a normal appearance. It is obvious that an examination consisting of one inspection does not, in many instances, give sufficient knowledge of the case to arrive at a complete diagnosis. In addition to the greater information gained by the operator, the psychic effect on the patient of thoroughness in examining is invaluable.

Dr. A. C. McCall (Asheville): I just wanted to emphasize the fact that Dr. Swann brought out. That is the method that Dr. Briggs used so much and I think successfully, some of us perhaps don't use as much —and that is frequent examination. He charged his patients some pretty steep fees perhaps, but he charged them enough so that he could afford to have them come back once, twice or more and make a proper diagnosis, the patient gained always by that. He really charged a very reasonable fee when you figure out how much he did.

With the exception of tonsils, and perhaps some few cases I don't believe that we are justified in jumping at a diagnosis in over about 25 per cent of the cases unless we can study the patient at least more than one time. It helps the patient, it helps your morale and the patient has more confidence in you if he thinks you take an interest in him. I think it is timely we have this paper by Dr. Swann. If we would all observe more we would all be better physicians.

THE RADICAL FRONTAL OPERATION

By Dr. Fielding Coombs, Winston-Salem

There probably has been more different types of operations devised for the frontal sinus than any other area of given size in the human body. Different authorities have different procedures of approach to eradicate disease of the frontal sinus and most of them striving to give the best cosmetic results.

As yet due to the irregular anatomical configurations of the sinus, there is no one type of operation which is satisfactory to all patients. The type of operation selected by the surgeon should be adapted to the patient and not the patient to the operation.

A deformity in many patients will leave them with a depression complex even though all the Pathology has been removed and in such a case often the cure is far worse than the original disease. In another individual the relief of symptoms regardless of the resulting deformity will be most appreciated.

As late as 1887 at the Berlin Medical congress it was agreed the frontal sinus should not be opened except in the presence of rupture, pressure on the bulb or intracranial symptoms. Up to this time it had been found the simple trephine operation resulted in only a few permanent cures.

Probably one of the first attempts at a definite cure was instituted by Ogston, afterward supplemented by Luc. The sinus was opened to the outside of the median line the size of the opening being in proportion

to the size of the sinus. The diseased mucosa was curetted, anterior ethmoid cells removed and free communication established between the sinus and nasal passage. A drain was left extending from floor of sinus into the nose and the external wound closed.

In 1898 Ridel advocated the most radical procedure of all. The complete removal of the anterior and inferior walls of the sinus and curetting the diseased mucosa of the posterior wall also ethmoid cells and etc. In this type of operation the surgeon would be more sure of the removal of all diseased tissue but the price of cure would be too great. It would be a rare instance when any patient would ever submit to such a deforming operation.

In 1894 Jansen was probably one of the first to think of cosmetic results. He removed the floor leaving the anterior wall intact. This was a better method of approach to the ethmoid cells than any previous technic.

In 1899 Knapp of New York published in the archives of Ophthalmology a description of his operative technic which consisted in the removal of the inferior wall of the frontal sinus and the exenteration of the ethmoid cells. His incision was different from previous surgeons as he made it below the eye brow and not through the center of the hair of the brow.

In 1902 Killian described his operation which seemed par excellence for all types of patients. He removed practically all the anterior wall also the inferior wall but left a bridge of bone covered with periosteum between the two walls to prevent deformity. The frontal process of the superior maxilla and also the ethmoid cells were exenterated. This operation is widely used throughout the country today and is probably the operation of choice in osteomyetitis of the anterior wall. Intracranial symptoms when one suspects pathology in the boney plate of the posterior wall. Regardless of care taken there is some noticeable deformity.

Probably the most recent type of operation on the frontal sinus was described by the late Dr. Lynch of New Orleans in the Laryngscope January 1921. He used the Killian incision which extends through the eye brow and down the side of the nose to about the lower level of the boney orbit. The remaining technic will be described later.

Previously to November 1928, I had been taught and had always done the Killian operation. A young college girl was sent to me with the right eye completely closed and almost complete closure of the left. X-ray revealed a very large sinus, probably filled with pus and granulations and a rupture through the inferior wall. After explaining what she might expect from a curative as well as a cosmetic result, she appeared far more anxious about the latter. Even though very ill she stressed the fact if it could possibly be avoided to not leave a scar in her eye brow.

Having done some plastic surgery on the lids I discovered the looseness of the attachment of the skin, its great elasticity, resistance to infection and if properly sutured would heal without leaving any appreciable scar.

Due to the above mentioned facts it was decided to make an incision similar to Knapps and complete the operation according to the Lynch technic. The curved incision was started below at the lower margin of the boney orbit up the side of the nose to just above the eternal canthus, curving outward from the median line and following the sulcus formed by the junction of the upper lid and inferior wall of the frontal sinus. This incision can be continued to the external canthus. The skin is then dissected up to the margin of the brow.

All bleeding checked using as few ligatures as possible. The periosteum is then incised as in the Lynch operation. "Following the boney margin of the brow and down the side of the nose." The periosteum is elevated from the inferior wall of the frontal sinus. Special care being exercised in elevating the periosteum from the trochlear fossa and the pushing aside of the lacrymal sac. The periosteum covering the anterior wall should not be elevated for traumatized. This point was stressed by Lynch to prevent osteomyelitis of the anterior wall following the operation. Next a small opening is made at inner angle and the sinus explored with a probe checking up on the X-ray, determining its extent and contour.

The entire floor is now removed with biting forceps and recesses over this area obliterated. The diseased mucosa, granulations and etc., is curetted away using the utmost care and a minimum of pressure. One should have not only curved curettes but also triangular shape in order to reach the acute angle above. The nasal process of the superior maxilla is removed, the lower lateral edge of the nasal bone, the lacrymal bone and a portion of the orbital plate of ethmoid, (provided a previous intra nasal operation has not been done, which seems to be the best and most conservite method of treatment when possible). Many a chronic frontal sinus has been cured by a thorough intra nasal operation.

After removing the lacrymal and paper plate of the ethmoid, the ethmoid cells are completely exenterated and if necessary sphenoid opened widely. Drainage used is iodoform gauze rolled in rubber tissue in the form of a cigarette. The end of the iodoform gauze extending out into the frontal sinus. The other covered with rubber tissue into the nose.

Two layers of sutures is taken. The deep plain catgut through the tissues covering the periosteum and approximating its edges but not through it. The skin is then closed with black sild interrupted sutures.

It is important that not only a snug but a tight dressing be placed over the wound to prevent hemorrhage or oozing under the skin flap.

While there is considerable controversy over cat gut sutures in this type of operation, I have had no trouble. The deep tissue being held in a position by the dressing. In the Lathrop-Skillern operation ten days chromic cat gut is used. The drainage is gradually removed in about five or six days, also the silk sutures should be removed about the sixth day. The nasal opening after drain should be kept open with as little manipulation as possible.

[1] Brit. M. J. May 23, 1885.
[2] Ridel: Dissertation jena, 1898.
[3] Jansen. B: Arch f Laryngol U. Rhinol: 1894 Vol. 2.
[4] Knapp. A: Arch. Ophth. 18: 50. 1899.
[5] Killian. Arch. f Laryngol U. Rhinol: 1902 Vol. 13.
[6] Lynch: Laryngscope. Jan. 1921.

Dr. J. S. Norman (Hickory): Dr. Coombs has given us a very extensive history of the different authorities and the various forms of operative procedure.

For many years this operation was attended by a large percentage of fatal results which, in a measure, was due probably to late operation with attending meningeal complications; also to the cutting down and removing of the outer plate above the supra-orthal ridge and inviting osteomyelitis.

As the writer has mentioned, Killian introduced a new surgery in this operation and gained a better result and lessened death rate. Killian's operation did open up and expose a larger field for operation but did invite the possibility of osteomyelitis by opening the frontal plate above the supercilliary ridge. His operation included the ethmoids and sphenoids.

It is, therefore, due the credit of a more conservative, less traumatic, operation that we now at this time give full honor of such success to Dr. Robert Clyde Lynch of New Orleans, as Dr. Coombs has mentioned. Dr. Lynch's axioms of this operation are: (1) Do not invade the periosteum above the supra orbital ridge on account of inviting an osteomyelitis as a complication. (2) In dissecting the periosteum below the ridge avoid tearing or cutting through the periosteum. (3) Use particular care at the end of the trochlear fossa and use delicate surgery of the lacrymal duct and canal as mentioned. (4) As the anterior ethmoid cells are nearly always involved exenterate them and if necessary the posterior and open up the sphenoid cells. I have also seen Dr. Lynch enter the antrum and clear it out at the same time. (5) In order that the wound edges would come together as before the incision he made about four or five cross cuts along the line of primary incision, these cuts to meet when incision was finally closed by sutures.

I might add here that one of his strong points of treatment following the shock of the operation was one pint of strong warm coffee to which had been added two ounces of glucose, given per rectum.

Dr. C. C. Swann (Asheville): I would like to say that I assisted Dr. Lynch with several of these operations and I saw a number in New Orleans that he had done. I only saw one case of failure, and that was a girl from Pensacola who had to come back to New Orleans and stayed around the Nose and Throat Hospital all the time I was there.

In addition to particular care with regard to the periosteum above, it is essential to remove all angles and small pockets about the frontal area, leaving a smooth margin of bone. In aiding us in that we would use a small laryngeal mirror, put it into the frontal, and invariably we would find small pieces of mucuous membrane hanging on to sharp

edges of bone. Where these were left in, every time a polyp, it seemed, would form somewhere in the frontal sinus, especially at the points of sharp bone that were left and any little angle.

Dr. V. K. Hart (Charlotte): Gentlemen, if there is no further discussion right now, I would like to comment for a minute or two on this paper. I think it is quite an important one.

First on the acute frontal sinus. I remember when I was in Vienna one day one of our best men, Dr. Hirst, made this remark which I am sorry to say is somewhat true, "Gentlemen, I am not so sure that since the war we have the same respect for human life as we had before." We can always do surgery, gentlemen, but we cannot undo it. I think that one of the things we must guard against today more than any other, one of the things which has brought us into disrepute is unnecessary surgery, and I think that these things must be approached with a great deal of careful study and judgment.

In point, may I suggest this: With an acute, fulminating frontal, perhaps even a rupture, without any sign of an intracranial complication, is it a bad procedure to make a small opening through the osplanum, approach the nasal frontal duct and institute simple drainage until that process has subsided in two or three weeks to the point where you can approach it from a surgical standpoint with safety?

In emphasizing what Dr. Coombs has already said, it is of the utmost importance that we preserve the periosteum. The destruction of the periosteum is apt to precipitate an acute osteomyelitis. I am convinced that in many of these cases, if simple surgical drainage is instituted in the very acute stage and then wait a few weeks, if you are forced to you can then intervene and go ahead with much greater safety.

Now if this picture presents itself of an intracranial complication (of which we have had two in the last 15 radical frontal operations) then you are compelled to resort to radical surgery, or if you have got an acute fulminating osteomyelitis, you may be compelled to use radical surgery.

My plea is this: That if you do have an acute osteomyelitis, which is fulminating, which is spreading, my personal belief is that you had better adopt one of two procedures: either entirely conservative the measures, or the most radical surgery. I think you have no choice. I think you must follow the thing out as far as it goes.

Dr. Vance P. Perry (Kinston): I will ask a question by quoting a case. This is of a man who has had headache for 16 years and never has been X-rayed. Thirteen months ago he became disabled with a spondylitis. He complained to his general practitioner, who is a very good man, of his headaches again, vomiting, etc.

He was sent to a neurological surgeon and there a very competent man, who had been trained in this country but also had training in Europe over a period of two years and who has been associated with some mighty good men up north who is now practicing in Richmond, X-rayed him and found that he had chronic sinuses. That was the first time in 16 years that this man had had an X-ray.

He did intranasal surgery on this chronic sinus. This patient was disabled from his spondylitis as much as from his headaches and diz-

ziness. The man was sent back home and he was just as disabled as he ever was.

I told this man we would first try conservative measures because, in addition or ridding him of his headache and eye symptoms, we were trying to rid him of this other trouble. His prostate, his gall bladder, his colon and everything had been studied out.

I did a Lynch operation in face of the fact that this man had huge frontals. That is where I doubt the Lynch operation—with these huge frontals. This man was better for a time and then he was worse. I am stating this case now for criticism you may offer for what I did.

I then told this man, "The only hope I have to offer you is an obliterating and somewhat disfiguring operation." I still was able to wash out infected material from this man's huge frontal sinus, and I still had a good opening. I gave this man five months and then I went in and took off the whole plate, frontal plate, so to speak.

The man's back is getting better, and he has no more headaches. Some one criticise that procedure.

CHAIRMAN HART: Is there any further comment on this paper? If not, I will ask Dr. Coombs to close, please.

ACUTE PURULENT ENDOGENOUS ENDOPHTHALMITIS IN THE ABSENCE OF AN ACUTE SYSTEMIC INFECTION

By DAVID S. ASBILL, M.D., Davis Hospital,
Statesville, N. C.

Metastatic panophthalmitis is fairly common and generally follows some acute systemic infection such as puerperal sepsis, cerebrospinal meningitis, pneumonia, and measles. In this paper we are not concerned with panophthalmitis from such causes. We are here considering only those rare cases of acute purulent endogenous endophthalmitis occurring in the absence of an acute systemic infection.

Selenkowsky and Woizechowsky[1] found that in rabbits and cats with many bacteria in the circulating blood, the organisms invaded the vitreous of normal eyes. When the bacteremia was slight, however, trauma to the eye was necessary to bring about infection.

Oreste[2] reported a case of metastatic choroiditis the probable cause of which was an unknown lesion in the gastro-intestinal tract or kidneys. Betti[3] reported two cases following contusion of the globe, but the original focus was not found. Verhoeff[4] reported a case of metastatic intraocular mycosis. Terrien[5] reported a case of suppurating iridocyclitis with the gall bladder named as the focus of infection and pneumococcus the causative organism. Levine[6] reported a case of metastatic bacillus coli panophthalmitis from calculus pyonephrosis. Van Fleet[7] reports a case of panophthalmitis due to a tonsillar infection. Levine also mentions a case of Dr. Goldstein's of New York in which B. coli ethmoiditis was the focus of infection.

The intraocular involvement is said to begin often in the ciliary body whence abscesses rupture or inflammation passes into the vitreous.

The intensity of the infection varies. Sometimes the panophthalmitis rapidly perforates the globe; sometimes a hypopyon iridocyclitis produces eventual atrophy; and again an insidious but very serious form exists which in children often simulates glioma.

Report of Case: G. M., a white boy, age six years, entered my office August 30, 1930, with chief complaint of pain and loss of vision in the right eye.

Family history: Negative.

Past history: Patient had chickenpox, pertussis, grip, tonsillitis, influenza, and occasional colds. These diseases never assumed serious proportions. The patient had not been ill since an attack of tonsillitis about two months ago. There had never been any history indicative of paranasal accessory sinus disease or gastro-intestinal disease.

The patient's eyes had never been previously subject to inflammation. The patient's family denied any injury to the boy's eye at any time past or present. The child was very intelligent. He stated that he had never sustained any injury to his eyes.

History of present illness: On August 29, 1930, about 5 p.m. the patient complained to his parents that something was in his right eye. At that time the eye smarted and felt scratchy. The father quoted the child to the effect that during the evening electric lights had a "rainbow around them." The boy ate a small evening meal and went to bed. He slept until about 2 a.m. August 30, 1930, when he began to fret and cry with pain in the right eye. There was no discharge from the eye. The lids were not agglutinated nor swollen. The patient slept no more and the family physician, Dr. J. S. Talley, was called. The latter sent the child to me. The patient arrived August 30, 1930, about 8 a.m. at which time he hung his head and held the right hand to his right eye. His expression was pinched and worn, and the child was crying a little.

Examination: The left eye and its appendages were normal to the usual methods of examination. Vision left eye 20/20. Examination of the right eye revealed swelling of both lids, especially the upper, with some engorgement of the veins in the upper lid. The palpebral conjunctiva was red and the vessels injected. No exudate was visible in the conjunctival sac. The ocular conjunctiva was slightly edematous and the blood vessels injected both circumcorneally and posteriorly. There was marked episcleral injection. The cornea was uniformly steamy and quite lusterless. Through the cloudy cornea were visible various-sized, cream-colored, posterior corneal deposits, but the latter could be made out only with difficulty because of the great cloudiness of the cornea. The deposits were present over the entire posterior corneal surface and thicker in the inferior quadrant, though no hypopyon was present. The aqueous appeared turbid. The iris could be seen very indistinctly and none of its finer structural details were discernible. The color of the iris was a hazy, muddy, yellowish gray. It could not be seen whether or not vessels were present on the iris. The pupil on the right side was 5 mm. in diameter, being twice the size of the left pupil. The left pupil reacted to light, accommodation and the consensual reflex. The right pupil did not react at all. Both eyes could be moved freely in every direction. The right eye was very tender to

palpation and the tension was obviously greatly increased. The cornea and conjunctiva showed no staining with 2 per cent alkaline solution of fluorescein. There was no evidence of trauma. Lacrimal sac and puncta were normal. Vision of right eye: Hand movements at two feet.

Ophthalmoscopic examination of the right eye was impossible by direct and indirect methods. Tension in the right eye 40 mm. of mercury; left eye, 18 mm. of mercury (Schiotz).

Transillumination of the right eye gave uniformly diminished intensity of reflex as the light was moved around the globe.

Ear, nose, and throat examination: Ears negative, nose negative. No pus was seen in the right or left nasal fossa. Throat: The tonsils were slightly enlarged. A narrow, red, sharply defined area of injection was present on the anterior pillars, and yellow caseous material and pus could be expressed from the tonsils. Adenoids were present in the nasopharynx. Otherwise, the nose and throat were negative.

Roentgenograms of the paranasal accessory sinuses were negative.

The general physical examination of the respiratory, cardio-vascular, alimentary, neuromuscular, genito-urinary systems, and the bones and joints was negative. On the skin of the legs were several small furuncles. The latter were incised. Smears and cultures were made and the following laboratory report received: Many polymorphonuclear leucocytes and staphylococcus aureus present.

Temperature on admission 99 degrees F., pulse 90, respiration 20. The general physical examination was otherwise negative. Fluoroscopic examination of the chest was negative.

Other laboratory examinations were as follows: Urinalysis—specific gravity 1.016, yellow, clear; albumin, 1 plus; acetone, 1 plus; indican, 1 plus; hyalin casts, 1 plus; no blood, pus or cuboidal epithelium; mucus, 1 plus; squamous epithelium, 1 plus.

Hemoglobin 75% (Dare). Red blood cells 4,500,000; white cells 11,500; differential: polymorphonuclear 87%, small lymphocytes 9%, large lymphocytes 4%. No transitional cells, eosinophiles, basophiles, or any abnormal cells present. Achromia 1 plus.

Feces: Negative.

Blood Wassermann: Negative.

Intracutaneous tuberculin test: Negative.

Blood culture: Negative.

Sedimentation rate: One hour (normal is five hours to 18 mm. mark).

Treatment consisted in hospitalization of the patient and the carrying out of the following measures:

1. Five c.c.'s of sterile milk intramuscularly daily.
2. Blue mass, grs. 5, on admission to be followed by saturated solution of magnesium sulphate, ½ oz., in the morning.
3. Soap suds enema on admission and as necessary on subsequent days.
4. Hot water compresses to the right eye for fifteen minutes every two hours.

5. Atropin sulphate solution 1%, 1 drop in right eye every two hours after the hot compresses.

6. Aspirin, grs. 5, every two hours.

7. Force fluids by mouth. Three glasses of orange juice daily in addition to other fluids.

8. Soft and liquid diet.

Progress: August 30, 1930. Temperature 102.6 F., pulse 125 per minute, respiration 35 per minute at 4 p.m. Patient slept at intervals, but was restless for the greater part of last night. There is very little change in the appearance of the eye except that the inflammatory signs are slightly accentuated. Tension 42 mm. right eye, 18 mm. of mercury in the left eye (Schiotz).

August 31, 1930. Temperature 102.8 F. (M), pulse 130, respiration 34 at 4 p.m. There is more swelling of the lids and more chemosis of the conjunctiva. There is fixation of the right eyeball with moderate proptosis. A small hypopyon is present in the right eye, and all the inflammatory signs are increased. Tension right eye 60; left eye 20 (Schiotz).

September 1, 1930. Temperature 103 F. (M), pulse 132, respiration 20. Patient more restless and complains at intervals of pain in the right eye. He holds his hand to the right eye most of the time. The eye is more tender to the touch, and the tension is still more elevated to palpation. Marked proptosis of the right eye was present. Enucleation was advised, but the patient's family refused that. They also refused incision of the cornea for drainage.

September 2, 1930. The patient spent a very poor night, and suffered at intervals with pain in the right eye. A mass of yellow exudate filled the anterior chamber. The eye was of stone-like hardness to palpation. All the inflammatory signs were greatly increased. By 10 a.m. a small perforation occurred near the periphery of the cornea with the liberation of cream-colored pus. Under nitrous oxide oxygen anesthesia and sterile precautions, a free incision was made in the cornea, and a large amount of pus escaped through the wound. A smear and culture were made from the pus. The laboratory report was hemolytic streptococcus. Sterile dressings were applied.

September 3, 1930. The patient was far more comfortable today. Urinalysis was negative. Profuse drainage occurred from the right eye, which had to be dressed several times daily.

The patient made a rapid convalescence and was discharged from the hospital September 5 with normal temperature. His eye was dressed as required. Drainage ceased in about a month. On November 22, 1930, tonsillectomy and adenoidectomy, together with enucleation of the right eye were performed under ether anesthesia. This time there were no abnormal urinary findings, the heart and lungs were normal, and the appearance of the child was very much improved.

Recovery from the operations was normal and uneventful. The patient began to wear an artificial eye January 1, 1931. The artificial eye moved well with the left eye. Cultures were made from the interior of the removed tonsil and hemolytic streptococci, and staphylococci and pneumococci were found. Sections of the removed phthis-

ical eye showed only sclera with a mass of scattered pigment and exudate adjacent such as one usually finds in similar pathological conditions.

The source of the infection could not be found out with absolute certainty. However, inasmuch as the patient's sinuses, teeth, and all other possible causes of the infection seemed to be negative, it was decided that the most logical thing to do was to remove the patient's chronically diseased tonsils, which were probably the responsible foci of infection.

BIBLIOGRAPHY

1. Selenkowsky, J., and Woizechowsky, N.: Experimental Work on Metastatic Panophthalmitis. Arch. f. Augenh. 47: 299, 1903.

2. Oreste, A.: Metastatic Choroiditis. Ann. d'ocul. 159: 460, 1921.

3. Betti, L.: Colon Bacillus Infection of the Eye. Riforma med. 35: 784, 1919.

4. Verhoeff, F. H.: Metastatic Intra-Ocular Mycosis. Arch. Ophth. 55: 225 (May), 1926.

5. Terrien, F.: Metastatic Ophthalmia. Ann. d'ocul. 159: 460, 1922.

6. Levine, J.: Metastatic Bacillus Coli Panophthalmitis from Calculus Pyonephrosis. Arch. Ophth. 3: 410 (April), 1930.

7. Van Fleet, J. Flandreau: Endogenous Panophthalmitis Accompanying Tonsillitis. Arch. Ophth. Volume 6—Number 3, pp. 426-427.

Dr. C. W. Banner (Greensboro): This is quite an interesting case to me. It is one of the cases we find frequently in practice in which we cannot locate the cause. I think in this particular case there were two causes there that might be considered. One is apparently offset by the blood analysis. He gives a history of having had abscesses on his legs and yet there was no blood stream infection. I think that might have been overlooked by the laboratory technician or probably it just didn't show up. That was one of the possible sources of infection in this case, it seems to me.

The other was the tonsils, as the doctor has suggested. It is one of those things that we sometimes come in contact with and we don't know just what to do because we meet with opposition from the family just as we did in this case, in which he was perfectly justified, in my mind, in removing this eye at an early stage, but with the opposition of the family of course he couldn't.

I want to say, in regard to the panophthalmitis cases that I have removed the eye in quite a number of these cases. There is some question whether it is better to remove the eyeball, in the early stage of the disease or wait, as in this case, and remove it later on after it has run its course, but I have removed these eyes in quite a number of cases and I have never had more than the usual reaction from them.

If we are right careful to do it without rupturing the eyeball, we will not have much difficulty. Sometimes where we have an ulcer and the eyeball ruptures and we get an infection there the danger is increased, but I try to be very careful in my dissection and make no pressure on the eyeball that might cause it to rupture.

I had an instrument made for cutting the nerve just back of the eye. It is a modified Lewis tonsil snare, small and with just sufficient curve to pass behind the eye without pressure or traction.

It closes the vessels and you get very little hemorrhage. I have been using that now for the past three years and with a very great deal of satisfaction.

There are two things in the treatment of that case that I would be rather inclined to criticise, although I don't think any treatment would have saved the eye. In the first place, the eye that has a dilated pupil with increased tension with hazy cornea and the rainbow circles around the light, as reported in this case, I would hesitate to use atropine. I don't think it did any harm in this case, but I would be a little afraid of it.

Another thing that appeals to me in the treatment is the use of hot applications in a case where you have got a pus infection. I think you are using an incubator to grow your germs. I would be more inclined to use cold applications in the beginning of a case of this kind.

Chairman Hart: Dr. Banner, would you mind passing your instrument around? I imagine some of the men would want to see it.

Dr. V. M. Hicks (Raleigh): I just wish to call your attention to the fact that haemolytic streptococcus is a queer varmint, and when we come in contact with it we may expect to do anything. The doctor here established the fact that this eye was lost from haemolytic streptococcus infection, the origin of which was unknown. The infection that existed in the tonsils at the time of the first examination, it seems to me, was prima facia evidence that the tonsils should be removed.

I rather am inclined to believe that nose and throat men have reached a point now where they have been somewhat browbeaten on this problem of radical surgery of the head when you are dealing with a serious condition such as this.

I am frank to say that not infrequently I deal with eye conditions that I feel require radical procedures, and it is with a good deal of hesitation that you can get a nose and throat man to say definitely any more that he thinks this thing ought to be done.

The general men have kept at the issue of whether a tonsil is normal or not until the nose and throat men are now raising the question themselves. Surely experience should be our best teacher, and when you are dealing with an infection that is inter-ocular in character, I think that it is time enough to forego conservative methods and surely the removal of tonsils does not endanger the possibility of the patient's getting the full benefit of any other treatment that might be instituted.

I think that is particularly true in cases where there is a question of whether or not a sinus is blocked, infected, whether it is getting sufficient drainage or not. It is commonly true that a nose and throat man refuses to open a sinus. I am sure that I have seen many cases of infections miraculously cured by the simple opening of an antrum that did not appear to the nose and throat man to be infected at all.

And so I plead in such cases as this that we should institute heroic methods and every vestige of the possibility of the cause should be re-

moved. I think that frequently we lose our opportunity to get a permanent beneficial result by failing to use these heroic methods.

CHAIRMAN HART: Is there any further discussion? If there is no further discussion of this paper, I will ask Dr. Asbill to close, please.

DR. DAVID S. ASBILL: The snare which Dr. Banner presents is very interesting to me and I think I shall get one.

With reference to the use of atropine in primary glaucoma, atropine would be absolutely contra-indicated. However, in a case like mine, that question occurred to me also, and I felt that inasmuch as this was undoubtedly a secondary glaucoma, inasmuch as I believe that primary acute congestive glaucoma is unknown below the age of 10 or 12, and inasmuch as the glaucoma was evidently due to the iridocyclitis, the treatment of the glaucoma would be the treatment of the iridocyclitis which, in this case, would be the use of atropine. Had the condition of the eye warranted, repeated paracentisis of the cornea would have been employed to control the tension.

These are the reasons why atropine was used and the line of reasoning along which I went in instituting this type of treatment. The hot compresses were used merely for their soothing effect as cold compresses were not tolerated.

I think also that Dr. Hicks made a very good point in stressing the importance of doing what you are going to do in time. My reaction at first was to remove the child's tonsils. However, the question came up in my mind: This disease is already so far advanced that I do not believe anything will probably benefit the child and if I remove the tonsils for this condition and the eye nevertheless goes on and is lost, then that throws a certain amount of discredit upon the operation of tonsillectomy which already has ample criticism to bear.

LARYNGEAL DIPHTHERIA

By DR. W. W. EAGLE, Durham

This paper is presented primarily as a report of a small series of laryngeal diphtheria cases, to relate the type of treatment provided and the results that were obtained. All of the children admitted had the classical symptoms of marked stridor, and were critically ill due to the air hunger and the long period of strenuous breathing; which had completely worn them out physically. They were cyanotic and restless.

Diphtheria, very fortunately, had been decreasing in prevalence in recent years, due to the easy availability of immunization. There are, however, some isolated rural families and some of the laboring and mill families that have not taken advantage of the immunization facilities. From these groups, we find that most of our laryngeal diphtheria cases come. On the other hand, there may be some children of the better-living classes that have not received proper prophylaxis due to the financial status of the country at the present time.

During the first year of existence of Duke Hospital, only two children with laryngeal diphtheria were admitted. Both of these children were white. Their ages were 4 years and 1½ years. In the second

year our hospital admitted 13 patients with laryngeal diphtheria. Peculiarly, all of these children were white. The ages ranged from 16 months to 4 years. Most of them were around 2½ to 3 years of age. Six were males and 7 were females. No two children were from the same family or the same neighborhood, and as a matter of fact, were from five or six different counties. In other words, there was no epidemic in any locality.

The two patients admitted during the first year had intubation tubes inserted on arrival. Respiratory difficulty appeared to have been relieved in each case. Diphtheria antitoxin to the extent of 10,000 units on two successive days was given each child, intramuscularly. Unfortunately both of these patients died, in each case approximately 72 hours after admission. One death was due to streptococcus pneumonia, which may have been in the incipient stage on admission but was unable to be picked up due to the stridor. The other death apparently was due to cardiac failure, probably toxemic.

Of the thirteen patients admitted last year, five were not in a state of extreme respiratory distress as the eight other children were. These five were treated conservatively; simply placing them under a tent with croup kettle, either of steam or tincture of benzoin. In one case a diphtheritic membrane on the epiglottis, which extended over the arytenoids, was removed in one piece—this procedure alone prevented necessity of further operative procedure. All were given 10,000 to 20,000 units of antitoxin, according to age and size. All five cases recovered.

The eight children who were found in extreme respiratory distress on admission had immediate tracheotomy operation. One child had intubation tube inserted before being sent to the hospital but had coughed it up and X-ray proved it to be in the stomach. It was passed within 24 hours. All eight cases were given antitoxin on admission, as the previously mentioned cases. Only one case caused any postoperative trouble and it was found necessary to keep the child under the croup tent. It so happened that it was the youngest child of the group—age 16 months. Crusts formed in the trachea, below the tracheotomy tube and it was necessary on some days to remove these crusts two or more times. Decannulation was not accomplished in his case until the fifteenth day. Most of the tubes were removed on the third day, one on the fourth, one on the eighth, and one on the tenth. All wounds healed promptly, recovery was uneventful, and the patients were discharged as soon as four consecutive cultures were negative for diphtheritic growth. All patients were discharged within the period of 10 to 18 days after admission, with the greater number about the twelfth day. Admission in 9 of the 13 cases had been on the third day of the disease. One case each had been admitted on the second, fifth, seventh, and the eighth day of disease.

The temperature in all thirteen cases came down towards the normal line the day after admission which was also the date of serum therapy. Temperature on admission varied from 99 to 105° F (37.4 to 40.5° C). There was no constant leukocytic count in these cases, as they ranged from 8,000 to 27,000. Some of the cases requiring tracheotomy had low leukocytic counts, while on the other hand some of

the cases with high counts required no operative procedure. There was only one case of reaction to the serum, this appearing on the twelfth day, lasting one day, and in all respects was very mild. No complications were observed in any case, as the urine remained negative in every case, indicating no renal involvement. Lungs remained clear in every case.

It was interesting to note that the tuberculin tests were negative in 12 cases and positive in one. This one case was shown to have considerable mediastinal tuberculosis, as shown in X-ray. Blood Wassermann was negative in all cases. Haemoglobin in two cases was down as low as 50% and the others varied from 70 to 90%. These facts are mentioned merely to show the various states of health the patients were in—with their subsequent recovery.

In general, three types of treatment are accorded diphtheritic children. The first is by antitoxin. The second is a combination of antitoxin and intubation, and the third is a combination of antitoxin and tracheotomy. In those cases of serum therapy alone, we expect the temperature to come down by the next day and the diphtheritic membrane to detach itself and slough out. On some occasions there is oedema following the serum therapy and we find it necessary later to do one of the operative procedures. Intubation is a perfectly safe and sane method of treating the cases together with serum therapy and probably is much more universally used than tracheotomy. I cannot help but feel that there is some pressure necrosis due to the intubation tube which may eventually cause some cicatricial formation with stenosis. Tracheotomy puts the vocal cords and the larynx in total rest without any pressure and seems to be no more dangerous than the intubation tube, especially relative to lung complications. The small wound which is left after healing, is not especially deforming and can be removed later and the skin edges approximated to form a hair line scar. There is hesitation in performing a tracheotomy on a girl because of the possibility of a disfiguring scar, but this point is minimal in relation to the life-saving objective.

All diphtheritic patients preferably should be cared for in a hospital. Unfortunately, such is not possible in every case. In case intubation tube has been inserted, only the doctor can reinsert the tube. In case tracheotomy has been done, the family or anyone can remove the inner tube and clean it as often as necessary. That point alone seems to elevate tracheotomy as the preferable operation. The nursing care in either case is extremely important. Our tracheotomy cases had the inner tube removed at intervals of 30 to 60 minutes, and suction was close by, to remove any tenacious discharge. Daily dressings kept down any secondary infections.

It has recently been shown by Richards and Glenn, of Boston, that tracheotomic wounds heal normally except for some changes of the mucosa, locally, of the trachea. In doing the tracheotomy, we should feel confident that we are doing no permanent damage to the trachea. Thus the operation no longer has the bad aspects we once felt it had. I will quote the conclusions of Richards and Glenn's investigations:

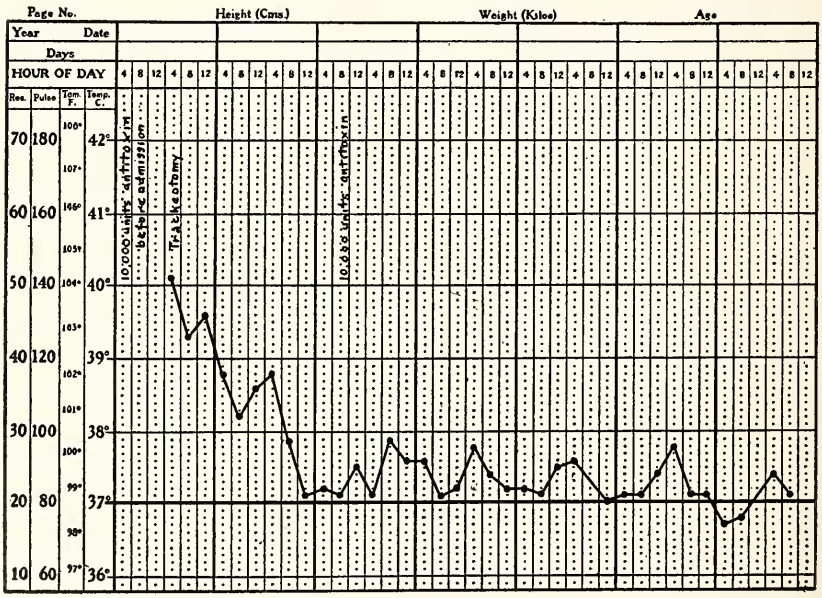
1. "Simple incisions in the trachea, if not infected, tend to heal with great rapidity. The defect is closed by a connective tissue growth, without any evidence of true regeneration of cartilage. The mucous membrane between heals rapidly, though with a modified type of epithelium. There is little if any tendency for encroachment on the tracheal lumen by the healing tissues in this type of wound.

2. The presence of a tracheal cannula delays the healing of the wound and increases the amount of connective tissue formed about it. So long as there is an adequate opening in the trachea for the cannula and no pressure against the cartilaginous edges, there is very little tendency toward the formation of granulations large enough to cause any appreciable obstruction to the tracheal lumen.

3. Infection about the cannula, occasioned primarily by too close approximation of the wound edges about the cannula, increases the tendency to connective tissue formation.

4. With a large anterior tracheal defect there is little tendency for the superficial tissues to fall in and encroach on the lumen of the trachea.

5. With a tracheal fistula, in the absence of a tube, the wound tends to close rapidly without any impairment of the tracheal lumen."



Typical Chart of Tracheotomy Case

Dr. Vance P. Peery: I want to take this occasion to thank the men for the very generous response to my letter as secretary asking for papers. I want to say that we had some 13 acceptances that could not be used. Gentlemen, I want you to believe me when I say this.

When I was elected secretary of this section I felt that I wanted to do everything in my power to get up a creditable program because Dr. Hart has been very active in our section. I started out writing the letters, starting with "A," then "B," etc. Before I got through sending out all my letters I had six acceptances, and then pretty soon I had nine. I am sure Dr. Hart and I wanted to put them all on but we had to pare those down to eight. Of course in writing back to the men who had accepted I had to point out to them that the time was limited.

You see how we have gone over. We got started late. Dr. Eagleton was not here and Dr. Eagle was not here and we have taken a long time.

I am saying this to express my appreciation for the generous response in getting this program up. The papers were accepted in order of their receipt by me.

Chairman Hart: Gentlemen, in connection with Dr. Peery's statement, I want to call attention to one or two things. Those of you who have served in the capacity of chairman or secretary are thoroughly cognizant of the troubles that beset you at times in an effort to be perfectly fair with everybody.

However, I would like to call attention to the men who serve as secretary hereafter one or two things that do not seem to have been appreciated. I think if you will look up the by-laws you will find I am borne out on this although I do not remember the exact wording. I do not think a man is supposed to appear on the program in two successive years. He can appear alternating years, I believe.

The other thing is that if a man sends in a paper or designates himself as appearing for a paper, unless he is prevented from appearing by dire emergency, I am under the impression that he is liable to be held off a program for two or three years.

Now I have absolutely no selfish interest in what I am going to say now. If you want to abide by what I ask you to do why that is entirely up to you, but I do believe that when we come to nominating our section officers, having been through this thing for two or three years myself as secretary, it is wise, I think, to reëlect your secretary. After a man has had an experience as secretary one year he makes a much more efficient secretary the next—not that Dr. Peery has not been efficient; he has and he has worked just as hard and strenuously over this thing as anybody could.

I think that is simply a fairly good principle to follow. It is entirely up to you, the Section, for ultimate decision in this matter.

Before we go to the election of officers, I am going to call on Dr. Hicks for a report on the Committee to Investigate Post-Graduate Training.

Dr. V. M. Hicks (Raleigh): Mr. Chairman, the Committee conferred with a number of the members of the Section relative to a post-graduate course, and it seemed feasible for a time that we could organize successfully a didactic course, selecting specific problems to be worked out by lecturers of known prominences for a period of three or four days' intensive training.

However, as the situation continued and the difficulty of men getting away for such a course seemed to be present, the Committee decided, after conferring with Dr. Manning and the Graduate School at the University, that it would be wise to forego the post-graduate course for this particular year.

I shall be very glad personally to know the reaction of this Section at this time as to whether or not we might attempt it for another year.

CHAIRMAN HART: The Chair will throw the subject open to discussion.

DR. H. R. MCCONNELL (Gastonia): I move that the report be received.

. . . The motion was seconded. . . .

CHAIRMAN HART: Is there any discussion or expression of opinion as to how long you would wish to put this off? Dr. Hicks, did you recommend that we do not take this matter up for another year?

DR. HICKS: No, I did not. I made no recommendation.

CHAIRMAN HART: Is there any further discussion of it? Those in favor will signify by saying "aye"; opposed "no." It is carried.

Gentlemen, I, too, just want to say this before I call for the election of officers, that I have enjoyed serving you as chairman and I, too, deeply appreciate the coöperation that has been offered us by every single man to make our program worth while. Nominations are in order for a secretary.

DR. JOHN G. MURPHY: Mr. Chairman, I would like to nominate Dr. Peery for Section Secretary.

. . . The nomination was seconded. . . .

CHAIRMAN HART: Are there any further nominations?

DR. MCCONNELL: Mr. President, I wish to commend the work that Dr. Peery has done and also I will give you a little bouquet, too.

CHAIRMAN HART: It has been moved that the nominations for secretary be closed. Is there a second to that motion?

. . . The motion was seconded. . . .

CHAIRMAN HART: All in favor of the election of Dr. Peery as secretary will say "aye"; opposed "no." It is carried and Dr. Peery is elected.

Nominations are now in order for a chairman.

DR. H. L. COOK (Greensboro): I would like to nominate Dr. Charles R. Reaves of Greensboro.

. . . The nomination was seconded. . . .

CHAIRMAN HART: Are there any other nominations?

CHAIRMAN HART: Those in favor of the election of Dr. Reaves as Chairman of the Section indicate by saying "aye"; contrary "no." It is carried. I am going to ask the new chairman to take the Chair. (Applause)

. . . Dr. Reaves took the Chair. . . .

CHAIRMAN REAVES: I want to thank you all very much for this honor and I know you are getting tired. Is there any other business to come before the Society?

DR. J. G. MURPHY: Mr. President, I think if my memory serves me right that this is the twentieth year that we have had a section of Eye,

Ear, Nose and Throat. When I first began to practice this specialty in the state about 24 years ago we read our papers in the general sessions. We met together and we knew everybody in the state who was in the specialty, and we agreed among ourselves in caucus that it was better to teach the people that such a thing as tonsils and adenoids ought to come out, but we don't have to teach them those things now.

My name is J. G. Murphy from Wilmington and I am practicing ophthalmology, and I would like to suggest that each man stand up and give his name and where he is from and his specialty.

CHAIRMAN REAVES: I think that is a good suggestion.

. . . The members present then arose, gave their names, addresses and their specialty. . . .

CHAIRMAN REAVES: Is there any other business to come before the Section? If not, we will adjourn.

. . . Thereupon the meeting adjourned at five-forty o'clock. . . .

SECTION ON PRACTICE OF MEDICINE

WEDNESDAY MORNING, APRIL 20, 1932

The meeting convened at eight-forty a. m., Dr. William H. Smith of Goldsboro presiding.

CHAIRMAN SMITH: The meeting will please come to order.

The first paper on the program this morning is, "A Brief Discussion, with Presentation of several types of Diseases of the Lymphatic Glands Observed at the State Sanatorium," by Dr. S. M. Bittinger.

A BRIEF DISCUSSION, WITH PRESENTATION OF SEVERAL TYPES OF DISEASED LYMPHATIC GLANDS WHICH WE HAD AT THE STATE SANATORIUM

By DR. S. M. BITTINGER, M.D., F.A.C.P.

Diseases of the widely distributed lymphocytic or lymphatic system occupy a very definite place in medicine. Collectively they are not uncommon. At times only the definite lymphatic glands or even only localized groups of glands are involved. Or again the general lymphocytic tissues as spleen, adenoid tissue in throat or intestines, and so on, are involved with in some definite involvement of the blood or blood forming organs causing marked changes in these special groups.

The diseases which constitute this interesting group are the acute and chronic lymphatic leukemia, pseudoleukemia, lymphosarcoma and Hodgkin's disease or lymphogranulomatosis, aleukemia and lymphocytoma. The exact nature of these diseases is unknown and has been the source of much controversy for many years. Some workers as Mallory of Boston group them with the tumors and certain of them surely belong to this group. Others as Hodgkin's disease and acute lymphatic leukemia resemble very closely an infectious process, though no definite organisms have been discovered. A number of organisms have been thought at times to have been found, but further careful investigation has discredited their presence as an etiological factor.

Finally there are other types which show on pathological examination simply a marked, often generalized lymphocytic hyperplasia with no distinctive features, the diagnosis being made from others of this group by clinical means, and especially by the character of the blood picture and by the process of exclusion.

Definite etiology of this group of diseases is unknown. Some of them, as Hodgkin's disease, acute leukemia and lymphosarcoma tend to occur in children and young adults, while others as chronic lymphatic leukemia occur in the fourth and fifth decade most commonly. The symptoms these different diseases exhibit, and the general pathological picture is rather variable, though on the whole showing a good deal of similarity. At times each disease shows a very definite clinical and pathological picture and again there are differences which are not at all clear, at times amounting to almost an overlapping. A moderate to great

enlargement of the lymphatic glands, either in groups or rather a general distribution is usually present. Except in the definite tumor type there is little definite infiltration of the surrounding tissues, the glands usually being fairly firm and of normal consistency except in cases of Hodgkin's disease when they may become definitely sclerotic. Usually there is no tendency for the glands to suppurate. Patient usually shows a moderate pyrexia, though in some of these cases there are periods of alternating pyrexia with apyrexia, sometimes showing marked regularity in these paroxysms.

The general symptoms are progressive weakness and malaise, moderate loss of weight and development often of a very severe secondary anemia, especially near the fatal termination. In some of these conditions the progress is a rapid one as in acute leukemia while in others the process is very chronic, often periods of prolonged remission alternating with periods when the progress is more rapid, as in the chronic leukemia or most often Hodgkin's disease, the course often extending over periods of months or years.

The differential diagnosis of each condition, not only from others of the group, but also from other diseases of the lymphatic glands or the lymphocytic tissue as tuberculous adenitis and simple glandular fever and so on offer extreme difficulty at times. Usually a correct diagnosis can be reached by careful history and examination with the use of repeated laboratory tests, especially repeated examinations of the blood, and above all by biopsy of an excised gland. However, very atypical cases are found in which only autopsy will reveal the correct pathology and even then nature of lesion may not be clear.

In coming to the prognosis and treatment I am sorry to say we have very little to offer patients in the way of encouragement. All of the members of this group are practically invariably fatal, though the course of the disease may be relatively acute as in lymphosarcoma or prolonged over periods of months or years as in chonic leukemia or Hodgkin's disease.

In regard to the treatment by drugs only arsenic by mouth as Fowlers solution, or administered by the subcutaneous or intravenous routes by using sodium cacodylate seem to have any effect on these diseases. Often remarkable results are obtained, including rapid decrease in size of glands, especially in Hodgkin's disease, accompanied by marked improvement in the blood picture as in leukemia, especially the chronic form, and these changes are often accompanied by marked clinical improvement with the prolongation of life and the making of the patient much more comfortable.

Treatment by means of the X-ray or radium is most useful of all, causing marked temporary improvement and very often this improvement being maintained for months, or even years. Many of the distressing symptoms, as from pressure and so on being relieved or greatly improved. So remarkable are the effects of deep X-ray therapy on these enlarged glands, causing marked decrease in the size of the glands, that it has been said that a case in which the glands do not respond to the X-rays or radium probably does not belong to this group of diseases.

Iron in inorganic form as Blauds Pills or the preparation of iron and ammonium citrate is very useful in combatting the associated sec-

ondary anemia which usually becomes very marked, especially toward the end.

One factor which often makes the treatment of so little avail is the fact that as the onset of the disease in so many cases is insidious the process has become so far advanced when the patient presents himself for treatment that little can be done.

The three cases that I have to present I think will show three definite and distinct types of these conditions.

The first case is that of Mrs. S. L. E., white female, age 30, admitted to the Sanatorium 4-1-23, dating onset of present illness beginning about 26 months ago, noticed glands in left side of neck becoming tender and slowly enlarging, followed by definite enlargement of left axillary glands a year later. About the first of June 1922 she developed a severe hacking cough, accompanied by practically no sputum and cough has progressed, becoming very severe and interfering with rest. During the oncoming summer noticed a good deal of weakness and malaise and steady loss of weight. Following an attack of influenza in December of the same year symptoms have progressed more steadily, accompanied by persistent huskiness of voice. Patient claims she has had a very severe general pruritus for the last six months, accompanied by no eruption. Patient claims that just before admission noted beginning enlargement of glands on the right side of neck and in right axilla, this enlargement has progressed rather rapidly, glands being tender, accompanied by some pain. For several months before admission temperature has been running from 99 to 100 and occasionally as high as 101. At the time of admission patient was about 17 lbs. off weight, complaining of marked weakness and malaise with severe irritating cough and voice very husky. Further history showed no other symptoms.

Family History: No tuberculosis in family, paternal grandfather dying of paralysis.

Physical examination shows a white female in early thirties, medium build, nourishment fair, showing evidence of loss of weight, muscles flabby, skin and mucous membranes very anemic, scratch sores over entire body, though no definite eruption present. Examination of mouth shows several decayed teeth with pyorrhea.

Laryngeal examination shows left vocal cord slightly uneven and approximation just fair, there being a tendency for both cords to lag.

There is present marked bilateral enlargement of cervical glands, especially those in posterior triangles and at base of neck, all more or less enlarged, to a mass the size of a hen's egg, somewhat larger on the left, but on the right apparently of recent origin and gland much more tender. Surrounding these masses are large individual glands and the whole does not impress you as having much inflammatory tissue surrounding and show no tendency to suppuration, and except for the ones of recent origin glands are not tender and they are not adherent to the skin in any place. The axillary glands are similarly enlarged and there are a few masses of glands connecting the axillary and cervicals extending under the pectoral muscles.

Examination of the chest shows very marked increase in parasternal dullness, both to right and left, extending out to almost the junction of the cartilage and bony portion of ribs.

Examination of the lungs negative except a few squeaks and inconstant dry rales on both sides, both front and back.

Examination of cardiovascular system negative.

Examination of abdomen shows a few small left inguinal glands palpable, spleen definitely enlarged with dullness extending about 1½ to 2 ins. below the rib margins and border of liver extending about a finger's breadth below margin of ribs, both structures are of apparently normal consistency and not tender.

Rectal examination shows a few external hemorrhoidal tags, otherwise rectal examination negative.

Stereoscopic X-ray of the chest shows a dense shadow occupying the entire mediastinum and extending out on each side of the inner lung zone. The nature of this shadow is interpreted by the radiologist as due to massive enlargement of the mediastinal glands. Throughout the lung fields there is a haziness of the trunks and a poor definition of their outlines suggestive of a light mottling. Above findings probably being due to congestion from pressure on blood vessels by masses in mediastinum.

Laboratory examinations show sputum continuously negative for tubercle bacilli; very slight trace of albumin in urine. Examination of blood shows white blood count between 12,000 and 14,000 with a rather severe secondary anemia; red blood count 2,432,000, hemoglobin 52%. Differential white blood count shows polys. 84%, lymphos. 13%, eos. 1%, trans. 2%. Wassermann negative.

The intracutaneous tuberculin test was negative to both dilutions 1:1000 and 1:100.

Patient remained in the Sanatorium over a period of about a month and over this period condition showed little change, except that she had two or three attacks of rather severe diarrhea, necessitating the use of narcotic with each attack. Temperature during her entire stay ran continuously from 100 to 102.

A short time after admission a biopsy of one of the glands was made and pathological report showed the definite pathology as seen in Hodgkin's disease.

Patient was discharged 4-29-23 after a stay of 28 days with the advice to her family physician that she be given deep X-ray therapy. The report from Dr. I. E. Shafer, who was her family physician, four months later states that Mrs. E. was still living, but her condition is gradually getting worse. She is slowly losing strength and her cough is getting more severe. The supra-clavicular and axillary glands are much larger, there is also enlargement of all inguinal and epitrochlear glands. Abdomen is distended with fluid and the legs are swollen to knee. Apparently the deep X-ray therapy has had no affect on her condition.

Here is a case of Hodgkin's disease showing a steady progression of the pathological process and clinical symptoms since the onset about 26 months before admission. The typical progressive enlargement of the lymphatic glands, the progressive involvement of one group of glands after another. In this case apparently the superficial glands first enlarged then gradual involvement of the deeper group, followed par-

ticularly the mediastinal. The progressive general symptoms, the severe general pruritus and the progressive secondary anemia together with the moderately enlarged spleen and slight enlargement of liver, followed by the development of progressive ascites and edema of lower extremities due to pressure on the venous trunks by the Hodgkin's masses. The hoarseness due to pressure of the mediastinal glands on the recurrent laryngeal nerve causing partial paralysis of the vocal cords and the severe irritating cough which has a brassy quality due to the irritation resulting from pressure. The pathological course constitutes, I think, a very typical picture of Hodgkin's disease so often coming for treatment after the disease is far advanced.

Case No. 2 is that of Mrs. C. R., white female, American, housewife, age 53, was first admitted to the institution in 1924 and discharged 9-21-24 as not tuberculous. Carried on well at home after this until the last of December 1927 had a respiratory infection and was left with a cough and moderately profuse expectoration, weakness and malaise. In April of the same year had a pulmonary hemorrhage of three or four ounces. Patient claims that a short time after the hemorrhage in April noticed some enlargement of glands on both sides of neck, also in axillary and inguinal region. The cervical and inguinal glands have been tender, but tenderness never marked, and claims that glands have remained rather stationary in size since they were first noted, have shown no tendency to suppurate and evidently very little inflammatory reaction has been present. On further careful questioning patient claims that she had never noticed these glands to be enlarged before the above mentioned hemorrhage. Claims that in the last few months she has noticed some fullness in the upper left abdomen, though has had no actual pain in this location. Has had a good deal of pain in small of back and region of hips. Remaining history of present illness and general history practically negative.

Previous personal history of little importance.

Family history: No tuberculosis in family.

Physical examination showed the patient's general appearance very good, does not look acutely sick, though has slight anxious expression, no evidence of weight lost, nourishment very good, muscles rather flabby, mucous membranes pale. Wears double plate, tonsils moderate size, slightly ragged, pillars slightly injected.

The glands of the posterior cervical group and at angles of jaw were definitely enlarged, ranging in size from that of a bean to a small walnut. Axillary glands similarly enlarged, possibly slightly larger than the cervicals. All of glands very discrete and freely movable, rather soft and show no evidence of any periadenitis, though they are quite tender.

Physical examination and X-ray showed a moderately advanced pulmonary lesion, the involvement being more marked in the right lung, also there was noted a few nodular densities located in the mediastinum probably due to enlarged mediastinal tracheobronchial glands.

Examination of the abdomen showed slight bulging of upper left abdomen, just below margin of ribs. Inguinal and femoral glands markedly enlarged, similar to the glands in cervical region and axilla.

Spleen distinctly palpable extending slightly below umbilicus, the surface being smooth and firm and only slight tenderness noted, lower margin of liver palpable. Abdominal examination otherwise negative.

Pelvic and rectal examinations negative.

Laboratory report: sputum continuously negative for tubercle bacilli, negative for spirochaetes, however many gram negative fusiform bacilli present. Urine negative except a small amount of albumin present. Examination of blood shows white blood count 96,000, red blood count 3,520,000, hemoglobin 70%, color index 1. Differential count: polys. 2%, lymphos. 98% and lymphocytes of the small variety. Red count showed slight achromia. Wassermann negative at the State Laboratory.

Intracutaneous dose of 1/10 cc. of dilution 1:1000 of old tuberculin was entirely negative, and patient gave a negative reaction to 1/10 cc. of dilution 1:100.

During patient's two months stay in the Sanatorium clinical symptoms showed very little change, possibly glands slightly larger at the time discharge. Patient was entirely afebrile. The highest white blood count recorded while here was 132,200, hemoglobin 68%. At this time the differential count showed polys. 8%, small lymphos. 92%. Marked achromia present and many crenated red cells. At the time of discharge white count 112,800, red blood count 3,400,000, hemoglobin 55%, polys. 3%, lymphos. 96%, monos. 1%. Red blood cells showed marked achromia. Coagulation time 2½ minutes.

While here patient was given one X-ray treatment to the spleen and one to the head of long bones and was discharged with the advice that she be given further X-ray treatment. However, this would have to be given very carefully due to the rapidly progressing secondary anemia.

Discussion of case: We felt that with such progressive glandular enlargement, showing no evidence of infiltration or suppuration with the completely negative tuberculin test thus ruling out the possibility of the pulmonary lesion or the glandular involvement being tuberculous in nature, especially as the excised gland showed only a marked lymphocytic hyperplasia, with no evidence of malignancy or Hodgkin's disease, or of tuberculosis, and especially the very typical blood picture of chronic lymphatic leukemia, we felt that this diagnosis was very definite in her case.

Several months after patient returned home a personal communication from her family physician gave the information that the patient refused to continue the X-ray treatment and died several months after her discharge. No autopsy made.

The third case is that of H. G., a little white girl, age 11, admitted to the Sanatorium 8-20-30. History of this child's illness largely obtained from her father, who claims that patient was struck on the shoulder by a baseball 6 or 8 months before admission. However, nature of this unknown, and amount of trauma received then very problematical.

The latter part of the spring of 1930 had an attack of so-called nettle rash and father thinks the child has not been so strong since. However, had no definite symptoms until about 2½ months before admission to the Sanatorium when she developed a dry brassy cough and

a week or two later began to complain of pain in the left arm and shoulder, this pain was slight at first, rapidly became worse and finally was so severe interfering with rest and usually worse at night, later above accompanied by pain and discomfort in chest with dyspnea. This latter symptom has been rather severe. About one month after onset of above patient was taken to her physician who made a diagnosis of left sided pleurisy with effusion and over a quart of fluid was removed. On admission the above symptoms were very severe, patient claims that lately there has been noticed some strangling on swallowing liquid foods. Appetite has been very poor. Has been running a temperature around 100, though no regular record of temperature has been kept. Father thinks she has lost some weight.

Previous personal history: Patient had measles 3 years ago, whooping cough four or five years ago, making good recovery from both. No other serious illness except mild influenza at an early age.

Family history: irrelevant, no exposure known to tuberculosis.

Physical examination shows a little girl, age 11, very well developed and fairly well nourished, muscles rather flabby, skin of face dusky, lips and fingernails definitely cyanosed, herpes on lips, tonsils rather diseased, few superficial veins rather prominent on left side of neck; few small glands in posterior triangles; definite bulge of left supraclavicular fossa, partly due to a mass of enlarged glands and a number of smaller ones situated at base of neck, mass not movable, is rather firm and gives a feel of the glands infiltrating the structures of neck. Also situated in the left axilla is a deeply located mass of glands similar to the ones in the neck. There is a distinct bulge of the anterior axillary fold due to a similar very large infiltrating gland, also there is present a number of small subcutaneous glands situated just below axilla on chest wall and there is present a rather firm tumor mass which is fixed to the surrounding tissues at the site of the left sterno-clavicular articulation. None of these glands are tender and all seem to be definitely infiltrating the surrounding structures.

Examination of chest shows a bulge of entire left chest with interspaces obliterated and superficial veins over anterior right chest rather prominent, expansion practically nil on left.

Examination of right lung shows no abnormal physical signs except breath sounds rather loud, probably compensatory. On the left, physical examination and X-ray show a massive pleural effusion occupying the entire left chest.

Examination of cardiovascular system shows pulse rather rapid. Blood pressure right arm, systolic 110, diastolic 60, pulse pressure 50. Left arm, systolic 105, diastolic 70, pulse pressure 35. Heart negative except very markedly displaced to the right, the right border extending almost to the midclavicular line and rate fast.

Abdominal examination shows a bulge of upper abdomen, especially on the right, no hernia, scars, veins or glands, on palpation edge of liver extends almost to the level of umbilicus, surface smooth and firm and no tenderness noted. Just below left margin of ribs there is felt an indefinite density which is thought to be due to the lower border of the spleen. On careful and deep palpation there is noted some indistinct

small nodular densities, probably due to enlarged mesenteric glands. Rest of abdominal examination negative and further general examination also negative.

Laboratory report: sputum negative for tubercle bacilli. Examination of urine negative. Blood: white blood count 10,200, red blood count 4,160,000, hemoglobin 72%. Differential count: polys. 80%, lymphos. 18%, eos. 2%, red count normal. Wassermann negative. Feces positive for hookworm ova.

A few days after admission left chest was aspirated and 1000 cc. of a very hemorrhagic pleural fluid was removed which was negative for tubercle bacilli or any other organisms and the blood count of this fluid showed white blood count 10,400: red blood count 1,220,000; differential count: polys. 60%, lymphos. 40%. The count however was rather inaccurate as the fluid coagulated so rapidly.

Patient's left chest was aspirated a second time and a small amount of air was injected. After this the X-ray showed from the level of the third rib anteriorly to the base an opaque shadow due to fluid, above this there is a small collection of air. Extending from the apex to the level of the second rib anteriorly and from the spine to the periphery there is a heavy, almost opaque density which is probably due either to caseation or to malignancy as interpreted by the radiologist.

Patient remained in the Sanatorium about three weeks and all of symptoms steadily progressed. She was discharged 9-7-30 and died about a week later. No autopsy obtained.

A short time after admission a biopsy of one of the glands in left axilla was made. Report from the pathologist showed lymphosarcoma.

To show how important it is to have a close coöperation between the findings on clinical examination and history of patient, and the findings obtained by the pathological study of the section as quoting the words of the pathologist "it is impossible to differentiate between lymphoid leukemia and lymphosarcoma in lymph nodes without information regarding the blood picture and general clinical phenomena along with the changes in the glands." We felt that since the pathology showed very marked lymphoid hyperplasia which is seen both in lymphosarcoma and lymphatic leukemia, and this fact when compared with the clinical picture of the very marked infiltrating type of glandular enlargement and with the very evident metastasis to the left pleura and lung, and especially since the blood picture showed only a mild secondary anemia, that this case was without question one of lymphosarcoma, and the final diagnosis was lymphosarcoma and hookworm disease.

The treatment of this child would have been ordinarily vigorous deep X-ray therapy. However, when she presented herself to us for treatment the process had become so far advanced that patient was clinically so desperately ill that treatment of any kind was out of the question.

Dr. Bittinger: Some of these cases are so very insidious that the patient does not present himself until no treatment would be of any avail. Of course the only drug that seems to have any influence at all on any of these lymphocytic diseases is Fowler's solution by mouth and

sodium cacodylate, subcutaneously or intravenously. Possibly salvarsan could be used also.

For the secondary anemia of course the usual treatment is adequate diet and the use of Blaud's pills or ammonium citrate, certain inorganic preparations of iron.

The two treatments that seem to do more good than anything else, seem to cause more definite improvement—certainly it is only a palliative one—are X-ray and radium. I don't think there is any question but that they do a great deal of good in making a patient more comfortable at the time, prolonging life also.

However, I was reading an article sometime ago by Minot of Boston who says that X-rays or radium did not seem to prolong the life of the patient but simply made the patient more comfortable, but I do not think there is any question that it does offer a palliative treatment. (Applause)

Dr. W. DeK. Wylie (Winston-Salem): I am very sorry that my friend and associate, Dr. Craig, is not here to present this paper. He is ill in the hospital but seems to be doing very nicely at present. However, I will go along with the paper.

IODIZED TABLE SALT, ITS COMMON USE AND RESULTS

By S. Douglas Craig, M.D., F.A.C.P., Winston-Salem

Iodized salt as the name implies is one containing iodine. Almost a century ago its use was started in Geneva. Twenty years later the possibilities of harm from its use was stated in medical literature. The strength of the salt then used was 1-10000.; one-half the strength of our domestic article.

Michigan salt manufacturers were the first in this country to supply iodized salt. Two iodine compounds are used in this country, in its manufacture, sodium and potassium iodide. The majority of manufacturers use sodium iodide as it is claimed by some that it possesses a distinct advantage over the potassium salt, because of a difference in physiological properties. Organic iodides in the preparation of iodized salt has been successfully used in Switzerland. This has the advantage over the inorganic salts as it is more staple and less likely to undergo decomposition.

In places where goitre is endemic, quoting Hercus, Benson and Carter, "The body requires an adequate daily supply of iodine throughout life for the normal thyroid activity. To recognize the deficiency and to supply it during the school period only is unsound." Professor Wagner Von Juaregg has said "the prophylaxis of a disease must become effective before danger through the disease sets in. Applying this thought to endemic goitre, prophylaxis must begin to have effect upon the child even before birth, perhaps even upon the germ cells. The prophylaxis of a disease, if it is really to be efficacious, must extend over all that are endangered by the disease. That is to say over the entire population in places where goitre is endemic."

It seems to be rather generally agreed that the iodization of salt, used for table and culinary purposes is the ideal way of furnishing iodine to large areas of people; however, there should be some standard regarding the iodine content of table salt. In this country the percentage varies greatly. In different countries it varies as follows:

United States, Michigan—1 part of KI or NAI to 5,000 parts of table salt.

Canada—1 part of KI or NAI to 10,000 parts of table salt.

Italy—1 part of KI or NAI to 100,000 parts of table salt.

Switzerland—1 part of KI or NAI to 200,000 parts of table salt.

New Zealand—1 part of KI or NAI to 250,000 parts of table salt. So much for what iodized salt is, and the various percentages of iodine.

I want to report twenty-five cases which I have observed during the past eighteen months, all of which have probably derived their symptoms from the use of iodized table salt. Apparently, a harmless article used in many homes for cooking and table use because some people have heard it was good for the general health, or would prevent goitre. It's probably true that the majority of normal individuals are not affected by using it; however, it seems that there are some women usually about the age of thirty who are quite susceptible to the iodide radicle and it is these women who develop a low grade hypothyroidism and experience the unpleasant symptom of fatigue so commonly complained of by these victims.

Case No. 1. January 12, 1931. A white woman, aged 32, born in North Carolina who has been married for seven years. Mother of two children, two and five years of age. Her daily activities are confined to instructing the servants about the house and entertaining friends at bridge about once a week. Her afternoons are devoted to automobile rides, visiting or sitting at home reading. There is a happy atmosphere about the home at all times and she has never a worry, extraordinary care or period of depression. She complains of fatigue, lack of energy and exhaustion upon the slightest exertion. This condition first had its onset two years ago and has gradually become worse. Her family history is unimportant. Past history: Has had measles, slight attack of rheumatism fifteen years ago, influenza 1928, tonsillectomy 1921, and an ectopic pregnancy 1925. Menstruation is normal, she has worn glasses for two years, and has had dental examinations frequently. She eats a well balanced diet, coffee only for breakfast, no coca-colas or alcoholic beverages, but she has used iodized salt in the house for about three years, without any reason other than thinking it was better for the general health.

Examination: January 12, 1931.

Female, age 32. White, weight 138, height 5 ft. 2 in. Respiration 16, pulse 62.

Appearance: Well nourished and apparently in excellent health.

Eyes: O. D. 15/15 J-3. O. S. 15/15 J-1. Fundi show blurring of disc margins in horizontal axis and the vessels show evidence of slight hyperemia. Pupils react to light and accommodation.

Ears: External auditory meati and tympanic membranes normal.

Nose: Septum straight, right middle turbinate somewhat enlarged. Sinuses clear upon transillumination.

Teeth: No evidence of infection, gums healthy.

Thorax: Symmetrical, equal expansion, breast normal.

Neck: No evidence of enlargement, venous pulsations or tracheal tug.

Lungs: Slightly thickened pleura left base.

Heart: Rate 58 to 60, normal size, rhythm and sound of good quality.

Abdomen: Right rectus scar, soft, no tenderness, rigidity or masses, appendix removed during operation for ectopic pregnancy. Gall bladder and spleen normal.

Extremities: Normal.

Rectum: Normal.

Genitalia: Cervix enlarged, soft and showed a small superficial erosion which was treated surgically.

Reflexes: All equal and hyperactive.

Lymphatics: Normal.

Skin: Somewhat dry.

Hair: Somewhat dry.

Laboratory findings—Hemoglobin: 75%. Leucocyte count: 5.800. Erynthocyte count: 3.172.000. Wassermann: negative. Blood sugar: 83 mgr.

Differential: Polymorphonuclear: 72%. Small mononuclear: 22%. Large mononuclear: 3%. Transitional: 2.5%. Eosinophiles: 0.5%. Basophile: 0.0%.

Urinalysis: Clear, acid, Sp. Gr. 1018, albumin: negative, sugar: negative.

Microscopic: No pus, blood or casts.

Stool: No occult blood or parasites.

Basal metabolism: Minus 20.

Diagnosis: Hypothyroidism (probably due to use of iodized salt).

Treatment: Discontinue iodized salt. Given thyroid gr. 1/2 tid.

February 4, 1931. Basal metabolism: minus 6. Given thyroid gr. 1 tid.

February 23, 1931. Basal metabolism: Plus 11. Patient feels greatly improved. She does not feel fatigued and experiences very little fatigue on exertion.

March 10, 1931. Basal metabolism: Plus 8. Patient gradually feeling better. Pulse 72.

April 10, 1931. Basal metabolism: Plus 10. Still improving. Pulse 74.

May 14, 1931. Basal metabolism: Plus 15. At this time she became nervous, pulse 84, experienced warm sensations and complained of nausea. Thyroid was reduced to gr. 1/2 tid.

June 30, 1931. Basal metabolism: Plus 8. Pulse 74. Thyroid reduced to gr. 1/4 tid.

July 30, 1931. Basal metabolism: Plus 5. Pulse 72. Thyroid reduced to gr. 1/8 tid.

August 15, 1931. Basal metabolism: Plus 6. Pulse 74. Thyroid discontinued.

September 14, 1931. Basal metabolism: Plus 5. Patient feeling fine.

October 10, 1931. Basal metabolism: Plus 2. Patient feeling fine.

December 18, 1931. Basal metabolism: Plus 3. Patient feeling fine.

The important point revealed here is that after the use of iodized salt for a period of three years, it has taken eight months for the thyroid to function normally after discontinuing the salt.

Case No. 2. January 13, 1931. A woman, aged 30, born in South Carolina, who was a saleslady, had been married for eleven years, and the mother of two children, four and six years of age. Family history: Unimportant. Past history: Has had measles, mumps, whooping cough, influenza, pneumonia, tonsillectomy 1922, amputation of cervix 1929. Menstruation usually about every thirty days, of moderate amount and seven days duration. Appetite always good, bowels regular, often has a fondness for sweets and usually an average weight of 115 pounds. Complaint: "Lack of pep, fatigue and doesn't feel like doing anything." Onset of symptoms began about four months ago but the symptoms have gradually become worse and during the past three weeks are quite severe. She eats a well balanced diet but has been using iodized salt about ten months.

Examination: Essentially negative.

Laboratory findings: Hemoglobin: 80%. Leucocyte count: 7.600. Erythrocyte count: 3.980.000. Wassermann: negative.

Urinanalysis: Cloudy, acid, Sp. Gr. 1016. Albumin: negative. Sugar: negative. Microscopic: No pus, blood or casts.

Basal metabolism: minus 15.

Diagnosis: Hypothyroidism (probably due to iodized salt).

Treatment: 1. Discontinue iodized salt. 2. Take thyroid gr. 1/4 tid.

May 27, 1931. Basalmetabolism: Plus 5. Improved, much stronger, can work without much fatigue. Pulse 80.

June 11, 1931. Basal metabolism: Plus 10. All symptoms subsided. Discontinue thyroid.

June 30, 1931. Basal metabolism: Zero. Feeling very good.

July 24, 1931. Basal metabolism: Plus 3. Feels fine and can work all day.

August 29, 1931. Basal metabolism: Plus 5. Patient apparently recovered.

Case No. 3. February 6, 1930. White woman, age 26, born in North Carolina, librarian, married for eight months. She has always felt well and has been very active socially until in 1927 when she noticed that she became more easily fatigued than usual, especially while playing golf or tennis. During 1928 and 1929 this condition gradually grew more pronounced until February 1930 when she had reached the stage she was tired at all times even though she did not exert herself.

Family history: Unimportant. Past history: Has had the usual diseases of childhood, influenza 1929, tonsillectomy 1923. Menstruation normal, appetite good, eats a well balanced diet, fond of sweets,

two cups of coffee daily, four cigarettes daily, no coca-colas or alcoholic beverages, goes to bed at 10:00 p.m. and gets up at 7:30 a.m.

Examination: Well nourished in appearance, weight 139, height 5 ft. 4 in., pulse 70, temperature 98. Complete physical examination was essentially negative except for a moderate dryness of skin and hair, slight refractive error, hyperactive reflexes and slight enlargement of thyroid.

Laboratory findings: Hemoglobin: 90%. Leucocyte count: 5.000. Erynthocyte count: 4.200.000. Differential: Polymorphonuclear: 63%. Small mononuclear: 33%. Large mononuclear: 2%. Transitional: 1%. Eosinophiles: 0%. Basophile: 1%. Wassermann: negative.

Urinalysis: Clear, acid, Sp. Gr. 1018. Albumin: negative. Sugar: negative.

Microscopic: No pus, blood or casts.

Basal metabolism: Minus 21.

Diagnosis: Hypothyroidism (probably due to use of iodized salt).

Treatment: 1. Discontinue iodized salt. 2. Thyroid extract gr. 1/4 tid.

February 20, 1930. Basal metabolism: Minus 5. Feeling much better. Dosage of thyroid increased to grains 1/2 tid.

March 4, 1930. Basal metabolism: Plus 6. Feeling fine, hasn't felt so well in three years.

April 22, 1930. Basal metabolism: Minus 18. Patient felt so well she discontinued thyroid for three weeks, now she is beginning to have a return of symptoms. Instructed to continue thyroid gr. 1/2 tid.

May 10, 1930. Basal metabolism: Plus 7. Patient feeling fine again.

June 1, 1930. Basal metabolism: Plus 15. Pulse 88, became somewhat nervous, advised to take only 1/2 gr. thyroid once daily.

July 30, 1930. Basal metabolism: Plus 2. Patient feeling fine. Discontinue thyroid.

August 21, 1930. Basal metabolism: Zero. Patient feeling fine. This patient was observed during 1931 without return of symptoms.

Case No. 4. April 26, 1929. White woman, age 23, born in North Carolina, stenographer, mother of one child six years of age. Complains of being tired at all times and loss of weight during past five months, menstruation only every four to eight weeks and quite nervous. Family history: Unimportant. Past history: Tonsillectomy 1925, otherwise unimportant except for the past six or eight years she has used iodized salt.

Examination: Weight 122, height 5 ft. 7 in., respiration 16, pulse 70, temperature 98.4, blood pressure 120/75. Findings of examination essentially normal except for slight enlargement of thyroid and hyperactive reflexes.

Laboratory findings: Hemoglobin 65%. Leucocyte count 8.000. Erynthocyte count 4.368.000. Stool: No occult blood or parasites. Differential: Polymorphonuclear: 70%. Small mononuclear: 25%. Large mononuclear: 2%. Transitional: 1%. Eosinphiles: 2%. Basophile: 0%.

Urinalysis: Clear, acid, Sp. Gr. 1010. Albumin: negative. Sugar: negative.

Microscopic: Occasional pus cell, no blood or casts.

Basal metabolism: minus 18.

Diagnosis: Hypothyroidism (probably due to use of iodized salt and underweight).

Treatment: 1. Discontinue iodized salt. 2. High caloric diet. 3. Thyroid grains 1/2 grain tid.

May 15, 1929. Basal metabolism: Plus 4. Patient gained eight pounds, feeling much better, says she has more energy and pep. Blood pressure 122/80. Pulse 72. Instructed to continue diet and decrease thyroid to 1/2 gr. twice daily.

July 14, 1929. Basal metabolism: Plus 14. Somewhat nervous. Pulse 82. Weight 128. Advised to take only 1/2 grain thyroid once daily.

July 21, 1929. Basal metabolism: Plus 6. Patient feeling better. Advised to discontinue thyroid.

August 20, 1929. Basal metabolism: Plus 6. Pulse 72. Weight 134. Patient states she is feeling fine and never gets tired like she did before treatment commenced. Her metabolism has remained about a plus 2 during the past two years.

Case No. 5. White woman, age 31, born in North Carolina, housewife, married, has one child, age ten years. Complains of frequent headaches and fatigue, which had its onset about one year ago. The headaches are mild but of rather long duration, occurring about once every two weeks. The fatigue is gradually becoming worse. Family history: Unimportant. Past history: Appendectomy 1926, tonsillectomy 1919, two abortions 1926. Always had a well balanced diet, no coffee, alcoholic beverages and does not smoke. Has used iodized salt for about two years.

Examination: Weight 97. Height 61 inches. Pulse 80. Blood pressure 100/70. Temperature 97.4. Respiration 18. Physical examination essentially negative except for being underweight.

Laboratory findings: Leucocyte count: 7.000. Hemoglobin: 90%. Erynthocyte count: 3.600.000. Blood Wassermann: negative. Spinal Wassermann: negative.

Urinalysis: Clear, acid, Sp. Gr. 1020. Albumin: negative. Sugar: negative. Microscopic: No pus, blood or casts. Stools: No occult blood or parasites. Basal metabolism. Minus 12.

Diagnosis: Probably a low grade hypothyroidism due to use of iodized salt.

Treatment: 1. Discontinue iodized salt. 2. Thyroid ext. gr. 1/2 tid.

March 30, 1930. Basal metabolism: Plus 8. Feeling much better, hasn't experienced any headaches, and fatigue is less. Advised to reduce thyroid to gr. 1/4 tid.

April 22, 1930. Basal metabolism: Plus 6. Patient has been feeling exceptionally well. Advised to discontinue thyroid and return after two months.

June 20, 1930. Basal metabolism: Plus 4. Hasn't experienced any headaches or fatigue.

The remaining twenty similar cases I will not discuss separately but will report to you as follows: All were white, females, ages from 25 to 33, born in North Carolina, sixteen complained of fatigue, two of fatigue and headaches, three of fatigue and nervousness. Ten had used iodized salt for three years, one for five, six for two years and three for one year. The symptoms seemed to have commenced from six months to two years after having used iodized salt regularly. It is quite interesting to note that upon physical examination these individuals appeared in excellent condition. Blood examination in twelve showed a mild secondary anaemia, the remaining eight showed normal counts, Wassermann reaction and urinalysis was negative upon all.

Basal metabolic rate varied from a minus five to a minus twenty. In the treatment the dosage of thyroid varied from 3/4 grain daily up to 3 grains daily, according to the metabolic rate and the length of time the individual had used iodized salt. All twenty cases responded to treatment immediately but it was not until three to eight months after discontinuing the use of iodized salt, that they were considered back to a normal condition.

The ill effects of iodized salt is seen not only in those having hypothyroidism, but also upon those persons who are normal.

The Swiss goitre commission in 1922 recommended an iodized salt, but the salt used in Switzerland is only one-fortieth as heavily dosed with potassium iodide as that used in this country.

In several states where there is very little organic iodides in the vegetables and milk, the use of iodized salt according to reports is essential. In North and South Carolina we have an abundance of organic iodides in our vegetables and milk, and we also live near enough to the sea coast to obtain sea food. I think we can conclude from these twenty-five cases that the iodized table salt in some individuals causes a moderate lowering of metabolic rate and a condition which warrants further observation and study. This especially applies to the people of our section of the country. They have sufficient organic iodides and when they use an iodized salt they are subjecting themselves to a rather serious condition. (Applause)

BIBLIOGRAPHY

Geagley, Iodized Salt. Journal Public Health.

Horn, Iodized Salt, a Seafood or a Drug. American Journal of Pharmacy.

Schwyzer, Pros and Contros in Use of Iodine Treatment of Goitre. Minnesota Medicine.

CHAIRMAN SMITH: Dr. Craig's paper is open for discussion, gentlemen.

DR. WM. DEB. MACNIDER (Chapel Hill): I am sorry I did not get here in time to hear all of Dr. Craig's paper. I was fortunate enough to be working in the same institution with Dr. David Marine when he did his fundamental work on iodine in its relationship to histological changes in the thyroid gland. This piece of work with its clinical applications constitutes one of the great contributions made by America to

scientific medicine. Incidentally, Dr. Marine is from the South, a native of Maryland.

In Marine's work there was no question but that the use of iodine in certain types of thyroid disease would lead to a decrease in glandular activity, and would also prevent the development of certain types of goiter. At the same time that these observations were made Marine emphasized repeatedly that the indiscriminate use of iodine, especially its use in large amounts, might increase thyroid activity and establish a state of hyperthyroidism, certainly when iodine is being given in any positive amount. Its influence over the activities of the thyroid gland should be checked by studies of the metabolic rate, and so far as I know, this is the only way to check its influence over thyroid activity.

The work of Marine, both from the laboratory and the clinical point of view, was furthered and extended through the work of Dr. Henry Plummer, of the Mayo Clinic. It was Plummer who pointed out its marked influence in certain toxic goiters as a prophylactic agent prior to operations. Marine's main contribution was concerning the use of iodine in preventing the goiter occurring about the age of puberty.

Dr. I. H. Manning (Chapel Hill): Mr. Chairman, it would be very interesting if the doctor would suggest to some of these patients to go back to the iodized salt for a little while and see if the same thing happened again. That would give us stronger proof that the iodine was absolutely responsible for the condition.

Chairman Smith: Any further discussion, gentlemen? If not, Dr. Wylie, do you have anything further to say?

Dr. Wylie: No further discussion except the fact that we are so pleased with the result of discontinuing the iodides that we didn't suggest to go back to the use of the salt to prove this. However, we find that it takes about eight to twelve months after discontinuing the iodized salt for the thyroid of the body to readjust itself and become normal. I think your suggestion is very good, Dr. Manning.

SOME ASPECTS OF CHOLECYSTOGRAPHY

By Dr. H. B. Ivey, Goldsboro

Soon after the discovery of Roentgen rays by Prof. Roentgen in 1895, the possibilities of their use to aid medical diagnosis was considered. Workers in various parts of the world began utilizing this new procedure to study the different internal organs. Their first practical use in medicine was the diagnosis of fractures. It was not long, however, until their scope of usefulness included study of many of the internal organs.

It was about 1900 when such men as Beck, Cole, Case, Pfahler, George, Knox and Roberts began giving reports of their work. The discovery was soon made that the gall-bladder did not lend itself readily to this new diagnostic procedure. The very best workers in the field of Roentgen diagnosis found it very difficult to demonstrate this illusive part of the anatomy. It was just about impossible to say whether it was or was not diseased. In rare instances when there were stones and

these stones contained the proper amount of calcium they could be demonstrated. The average was 18 to 20% which could be shown. This did not mean 18 to 20% of all cases presenting for examination but 18 to 20% of the diseased gall-bladders afterwards proven to be diseased by operation. Dr. Carmen of Mayo Clinic a little later was able to show 45%, but few others met with this success.

The above percentage held from about 1900 to 1911. In 1911 Shumayer of Germany, Pfhaler, George, Cole and others in this country instituted a new method of studying the gall-bladder with X-ray. This method consisted of studying the gall-bladder by its relations to other organs. They endeavored to show adhesions to the duodenum and indentations and other alterations of the contour of the stomach and duodenum after these organs were filled with bismuth or barium. This method combined with the previous one of a plain plate which had been used for ten years did give a higher percentage.

These combined methods held sway from 1911 to 1924, when the new Graham-Cole or Graham, Cole and Copher discovery came into use. Abel and Rowntree were the first to record the very important physiological fact that the liver would eliminate certain drugs. Graham, Cole and Copher having in mind this fact and the already established fact that the function of the gall-bladder was to concentrate the bile and regulate the pressure within the system of biliary ducts, the search was then begun for a drug that was eliminated by the liver in the bile, and would at the same time cast a shadow on a roentgenogram.

It was in 1924 that Graham, Cole and Copher announced the fact that compounds containing iodine and bromine would cast such a shadow. Having this fact as a basis, they developed the technique for gall-bladder examination, bearing their names.

The drugs found to be best suited for these tests were, tetroiodphenolphthalein and tetrabromphenolphthalein. Graham, Cole and Copher first gave these compounds by the intravenous route. Following these intravenous injections were many reactions, some of which were severe and some even fatal. These severe reactions with some mortality attached caused the numerous workers in this field to seek other methods of administration. It was Menees and Robinson who first utilized the oral method of giving these drugs, so today we have two methods, oral and intravenous each with its ardent advocates, others taking the happy medium, using the one that seems best suited to the case in hand. I would like to say from my limited experience there is no difference in the end results. I have checked one against the other in the same case with identical results. The oral is less complicated and hence the most often employed by the average roentgenologist. The untoward reactions from the dye when given by either route is about the same. The symptoms are flushing, first a rise and then a fall in blood pressure, nausea and vomiting, diarrhoea and abdominal cramps. The nausea is usually more severe when the drug has been taken orally.

There are only three contra-indications to the use of the drugs, namely: myocardial weakness, uremia and low blood pressure.

Oral administration should begin by having the patient take a thorough cleansing of alimentary tract. If possible, a preliminary plate can be made. The capsules consisting of 3.5 gms. of the dye mixed with bicarbonate of soda are given. The patient is instructed to eat a fat free evening meal consisting of toast, boiled potatoes, raw or cooked fruit at 6 p.m. At 8 p.m. he begins the capsules, taking two every fifteen minutes until all are taken. He is allowed plenty of water, but nothing else in the way of food or beverage. Instructions are given to report to X-ray department 12 hours later. The dye is now furnished in liquid form which can be taken at one dose in grape juice or water. The procedure is the same except the dye is all taken at one time instead of about five doses.

When the patient reports 12 hours later a plate should be made. Another plate at 16 hours. A fatty meal may then be given and still another plate made. Then if pathology is found another may be made in 24 or 36 hours. This would only be necessary to determine retention or stasis.

The intravenous method requires the same preparation of the patient. Lahey and Jordan claim the colon has direct affect on filling of gall-bladder and should always be empty when dye is given by either route. Three and one-half gms. of the dye is dissolved in 28 C.C. of freshly distilled water. It is then filtered and sterilized in a water bath for 15 minutes before injection into the vein. The injection should be given slowly, allowing at least ten minutes to elapse during the injection. The roentgenograms should be taken at four, eight, twenty-four and thirty-six hours to make a complete study. The intravenous method, in my opinion, finds its greatest use as a check for the oral method, in case of any doubt.

The function of the gall-bladder may be determined by having the patient eat a fatty meal and observation after one hour should show the gall-bladder reduced one-third to one-half in size. It should reduce seven-eighths in size in three hours after a fatty meal and be entirely empty after 48 hours.

In interpretation of the films the following findings must be considered: (1) Normal shadow. (2) Cholelithiasis. (3) Persistency of the shadow. (4) Faint shadow. (5) No shadow. (6) Deformity of shadow.

(1) Taking these in the order mentioned, if a gall-bladder is normal it will show a shadow in 12 hours after oral administration of the drug or 4 hours after intravenous administration. The shadow will be more dense 4 hours later after either method. It will decrease in size after a fatty meal. It should be regular in outline, show no stones or shadows of lesser density that might be interpreted as cholesterol or soft stones.

(2) Cholelithiasis—There are two types of stones, one is the opaque stone which contains varied amounts of calcium and is visible either with or without the dye. These, as you know, may be present in any number from one to hundreds.

Then we have the cholesterol or bile salts stone which is non opaque and is diagnosed by lessening the density of the shadow.

(3) Persistency of the shadow after a meal shows a like of muscular tone and often this type is enlarged, ectatic and ptosed. This may indicate infection and stasis.

(4) The "Faint Shadow." What is the "Faint Shadow" and how can it be recognized? We all know after the injection or taking of tetraiodophenolphthalein that the gall-bladder gradually fills with the opaque bile. This takes place 12 to 16 hours when taken by mouth and 4 to 12 hours when given intravenously. After the study of some few normal shadows, we fix in our minds the density usually taken on by a gall-bladder of normal function. This enables us to distinguish the varying degrees of the shadow produced by the abnormal or diseased gall-bladder. What does a "faint shadow" indicate? If we assume that opaque bile enters the gall-bladder to cast the shadow, then a faint shadow must indicate one of three things. (a) That the gall-bladder wall is so thickened and inflamed that the density of the opaque bile is lessened. (b) That the gall-bladder is so packed with stones as not to allow much bile to enter. (c) The greatest number of "faint shadows" come from interference with concentration of the bile. This is true in acute cholecystitis exacerbations of chronic cases, inflammatory changes in the mucous membranes and old sclerotic gall-bladders. (d) That there are other individual cases of faint shadows there can be no doubt. The important fact is, that the finding of a faint shadow indicates pathology.

(5) No shadow. What does this tell us? What has been said of the faint shadow applies to the case that gives no shadow. The main thing shown is an obstruction or partial obstruction in the cystic duct. I would like to state here that all faint shadows and gall-bladders that cast no shadow should be rechecked before rendering a final diagnosis. The most common causes of no shadow is a stone in cystic duct. There may be a spasm of the duct from irritability, construction, adhesions or pressure from an adjoining organ. Stewart has suggested cholecystitis with rapid absorption of the iodine while the water is not absorbed, inflammation breaking up the bile combination thus preventing the union of bile and dye; thickened bile of a tarry consistency not miscible with dye, gall-bladder filled with non-opaque stones.

(6) The deformed shadow. The gall-bladder can appear to be deformed and still be normal. It is sometimes elongated, sacculated, angulated and sometimes constricted but still giving normal response to the dye. One of my teachers once said about the colon, "He did not care where the patient wore his colon just so the function was good." I have about reached the same conclusion regarding the gall-bladder. This is the type of case in which a correlation of the history of the case and the roentengram should be considered together, and all the evidence heard before judgment is rendered.

The deformity may be due to adhesions, or it may be due to the position of contiguous organs or adjacent pathology. All of these things must be considered, but it remains of paramount importance that the symptommatology points toward gall-bladder disease.

In conclusion I have attempted to give you in a brief manner:

(1) A brief history of roentgen diagnosis of the gall-bladder before the discovery of the Graham-Cole test.

(2) Something of the work done in perfecting this test by Graham, Cole and others.

(3) Interpretations of signs when the test has been used which includes:

(A) Normal shadow.
(B) Cholelithions.
(C) Persistent shadow.
(D) Faint shadow.
(E) No shadow.
(F) Deformed shadow.

REFERENCES

Graham, E. A., Cholecystography.

Graham, E. A., Cholecystography: use of tetraiodophenolphthalein.

Fantus, B., Oral Administration of colloidal contrast Media in cholecystography.

McCoy, C. C., Development of roentgenologic examination of biliary tract.

Carmen, R. D., Roentgenologia diagnosis or cholecystic disease.

Dr. D. B. Cobb (Goldsboro): Mr. Chairman, I think Dr. Ivey has given us a very interesting presentation on the development of cholecystography and on the technical production of cholecystograms. From his discussion of the lantern slides, there are a number of things to be taken into consideration in arriving at a final opinion.

Whereas the dye method of the gall bladder was introduced as an X-ray aid in diagnosis, it is coming to be recognized as a test of gall-biadder function, and anything which affects the function of the gall-bladder will affect the cholecystographic finding.

For instance, the liver, the seat of disease, malignancy or congestion or a partial or complete obstruction in the bile duct, with stone, stricture or malignancy would so affect the secretion and the passage of bile as to make it impossible to enter the gall-bladder and make it impossible to get an X-ray picture of the gall-bladder, and yet the gall-bladder itself might be perfectly normal.

Assuming, however, that the bile doesn't enter the gall-bladder easily, then the X-ray picture of it will depend upon its three known functions—namely the concentration of bile, the storage of bile and its expulsion into the duodenum. Anything that might affect this function, whether it be actual disease of the gall-bladder itself or whether it be some intra-abdominal condition, some acute remote pathology within the abdomen that has affected the gall-bladder would also affect the cholecystographic findings.

All of which brings me to the point I would like to make—that is, that in studying these gall-bladder pictures and in arriving at a proper diagnosis and placing the proper value on the cholecystogram, it seems to me that it is very important that the roentgenologist and the clinician, the person who has seen this patient clinically, should consider this picture together and let the man who has studied it from the clinical

side know whether or not there might be something else entering into the situation of the patient that could be affecting the storage of bile in the gall-bladder.

I have made it a rule to study with Dr. Ivey all of the X-ray pictures of the gall-bladder that have been made in my practice, and in following these cases to operation I have found—and I have recently reviewed all the gall-bladder cases that I have had for the past six years—that this cholecystography gives reliable pre-operative information in over 90 per cent of the cases. (Applause).

CHAIRMAN SMITH: Gentlemen, discussion of Dr. Ivey's paper is still open.

DR. SHULL (Charlotte): I had the opportunity of hearing Dr. Graham and being with him at the time he read his paper seven years ago, and I think all of us who came away from that Chicago meeting were very enthusiastic about the ability to demonstrate the presence or absence of stone in the gall-bladder. Certainly we all came home and tried our hand at intravenous administration of the dye, and most of us with a lot of grief.

As time went on, however, cases of vague indigestion, gastric symptoms of one sort or another began to be referred to us for cholecystographic study, and for the past few years I think the most helpful purpose that cholecystography has given to the profession has been the X-ray study of the type of case that give us a persistent faint shadow.

Certainly in symposiums on X-ray study of the gall-bladder the chief topic of discussion among these men has been how to interpret this faint shadow and what degree of reliance is to be placed on its persistence. I feel that we have probably rendered our greatest service to internal medicine in evaluating the presence of this faint shadow, and then I will line up with Dr. Cobb and consider consultation.

I feel very strongly that the X-ray man should be kept in the dark about the clinical history of these vague indigestion type of cases, women of age 40, fair, fat and belching gas. Until we have gone ahead and spent our experience on interpreting these faint shadows, I feel like we will probably give the clinician a more unbiased opinion as to the significance of this persistent faint shadow.

In no other field of my work as an X-ray man do I take that position. I want to know all about the chest, about the duodenal symptoms of an ulcer, or in any other line of work that I am called on to do, I line right up with the clinician and do it eagerly, but in this gall-bladder thing, I very much object to knowing anything about the history until I have given the patient the benefit of the examination.

There is one other consideration that Dr. Ivey didn't mention, and that is to administer this dye in the presence or subsequent to an acute attack. I feel very strongly that we should lay off the case until all the evidence of jaundice has disappeared.

We use the tetradal, and have now for about four years, with entirely satisfactory results, giving it by mouth. As a preparation measure, I have found that the old time compound licorice powder gets rid of gas better than anything we have.

CHAIRMAN SMITH: Gentlemen, is there any further discussion of Dr. Ivey's paper? If not, I will ask Dr. Ivey to close the discussion.

DR. H. B. IVEY: Mr. President, I will have very little further to say, except I would like to mention one fact. There is one thing that frightens the roentgenologist, and that is the fact that the clinician and the surgeon accept his diagnosis so readily as a final diagnosis.

I agree with Dr. Cobb and Dr. Shull that we like to be considered as consultants. We like to consult with the man who is the clinician or surgeon who has seen the case previously and we like to have all angles of symptomology before we render a final diagnosis.

CHAIRMAN SMITH: The next paper is by Dr. C. E. Ervin, Danville, Pa., on "Maintenance of Protein Balance in Nephritis," with Dr. Arden Kimmel as co-author.

"MAINTENANCE OF PROTEIN BALANCE IN NEPHRITIS"

By C. E. ERVIN, M.D. AND ARDEN KIMMEL, M.D.*
Danville, Pa.

In the first place, I want to express my appreciation of this opportunity to come back to my native state to discuss certain phases of nephritis. It was here that my first inspiration concerning kidney disease was aroused. In the summer of 1914 it was my good fortune to be chosen by Dr. Wm. DeB. MacNider to assist him in carrying on his work in experimental nephritis at the University. All my spare time for the next two years was devoted to this work. My interest in the subject of nephritis has been kept keenly alive during the intervening years by the enthusiasm gained from my association with Dr. MacNider. The lessons which I learned from him in his laboratory and out have been my greatest help in developing the medical department of the Geisinger Memorial Hospital at Danville, Pa., an institution to which more than 5,000 patients were admitted last year, forty percent of which were medical. The University has in Dr. MacNider not only one of the world's leading authorities on experimental nephritis, but a teacher whose influence has followed his students throughout the land.

We want to discuss briefly today the subject of maintenance of protein balance in nephritis. Before the advent of modern biochemistry and intensive research, the rôle of protein in the treatment of nephritis was apparently obvious. Since the urine contained albumen and the proteins of the blood were usually elevated it seemed manifest that these substances in the diet should be limited. This conception became so fixed in professional and lay minds, save perhaps for an observing doctor here and there who saw the advantage in a more liberal diet, that several generations were required before any radical change could be instituted. Generally speaking, however, our confusion is increasing with our knowledge and it is time to summarize a rational treatment.

The concept of adequate protein in nephritis was probably first stimulated by the identification of the syndrome of nephrosis by Volhard

* From the Medical Department of the Geisinger Memorial Hospital, Danville, Pa.

and Fahr in 1914. The marked albuminuria and lowered blood proteins of this syndrome made a high protein diet seem logical and this dietary régime was tried by Epstein[1] in 1917 with good results. This obsevation formed an opening wedge for adequate protein allowance in all forms of nephritis.

During the past several years there has been an increasing doubt that there is such a thing as a purely tubular degeneration[2] and for this reason there has been objection to the term nephrosis. It is obvious that the large amount of albumen passed with the urine in this syndrome cannot originate in the kidneys alone and the greater part of it must have passed through the glomerular membrane.[3] It has been thought that the normal glomerular membrane is not permeable to albumen, but recent work by Thomas[4] tends to show that the glomeruli exert a selective action and are able to hold back normal serum protein, at the same time excrete any toxic protein that may be in the blood. This conforms to the newer conception that nephrosis primarily is a disease of body tissues other than the renal tubules. In this paper we use the term nephrosis, for lack of a better one, to designate the syndrome which is now familiar to everyone, with the understanding that the distinction is purely clinical and not based upon pathological findings. We believe that the principle of maintaining protein balance is applicable in both, differing only in degree.

If it is necessary to maintain adequate protein intake in health, it is even more necessary in disease, with its increased metabolism; and in this, nephritis is no exception. There is no indication for a protein intake which is not sufficient to replace tissue catabolism and a diet excessively low in protein only can do harm. The deficit in the diet will have to be met by endogenous protein at the expense of the body tissues. Protein metabolism can be spared somewhat by the judicious use of carbohydrates and fats but there is obviously a limit to this.[5]

There is no conclusive experimental evidence to show that high protein diets are harmful to the normal or nephritic kidney in man. Newburgh and Curtis[6] have produced experimental nephritis in white rats by feeding high protein diets over a long period of time. They believe that the nephrotoxic properties of protein depend largely upon the contained amino-acid and that tryptophan and cystine are the chief offenders. However, it must be noted that the amount of protein used in his diets is proportionately much larger than would be necessary for a normal diet in man. Furthermore, McClellan and DuBois[7] were unable to demonstrate any ill effects in two men who lived on an exclusive meat diet for over a year. Eskimos, living entirely on a meat diet, are peculiarly free from renal and vascular disease.

On the other hand, there is no lack of evidence to show that a deficiency of protein is harmful. The anemia usually associated with nephritis is certainly aggravated by a diet deficient in meat. Thorpe[8] has collected a series of cases which correlate the congenital anemia of infants with meat free diets of their mothers during pregnancy. Kern[9], in reviewing the question of diet in the etiology of anemia, cites a case of Addisonian type of blood picture precipitated by a diet lacking in protein. A feeding of sufficient protein produced adequate remission.

Aside from its effect on the hematopoietic system, evidence is accumulating to show that diets low in protein are detrimental to the recovery of nephritis itself. Normally, the total protein in the plasma is 7.8%; of this albumen constitutes 4.5%, globulin 1.5-3.5%, and fibrinogen 1-.25%. The colloidal osmotic pressure of the blood plasma is from 25-30 mm. Hg. and this is maintained largely by the plasma proteins[10]. This osmotic pressure is not necessarily related to the total protein but depends more upon the amount of albumen present.[11] Albumen has the smallest molecule, fibrinogen the largest and globulin stands midway between the two. Because albumen has the smallest molecule it exerts the greatest osmotic pressure. Ninety percent of the protein lost in the urine is albumen due to the fact that its smaller molecule passes more readily through the damaged glomerular membrane. Globulin is not lost in appreciable amount except when the glomerular damage is very severe. Because of this the amount of globulin being lost is useful in determining the prognosis. Where the loss of protein is so great that the osmotic pressure becomes less than the hydrostatic pressure in the capillaries, edema occurs. Various authors have tried to find a constant edema level for serum albumen but their results are variable. Barker and Kirk[12] set 1% of albumen; Moore and Van-Slyke[13] 2.3-2.7%; Calvin and Goldberg[11] 2-2.5% but in individual cases the edema level may be at great variance from these figures. Theoretically the figure should vary because the depletion and consequently the osmotic pressure of the deposit proteins vary. Calvin and Goldberg[11] are of the opinion that although low serum protein is a predisposing factor to edema there must be some "trigger" mechanism, unknown at present, because of the suddenness and cyclic character of diuresis. The bulk of the evidence, however, seems to indicate that there is a very definite correlation between the serum proteins and edema but this has so far not been accurately determined. With high protein feedings the serum proteins rise very slowly, if at all. The nitrogen is apparently retained as deposit protein at first because of tissue depletion.[5] This exerts an increased osmotic pressure and diuresis only can occur when the serum proteins have been built up to a point which will overcome this. It therefore seems plausible that diuresis should be cyclic in nature solely due to the effect of protein balance.

There are some who object to meat in the diet because of its effect on the acid-base equilibrium and think that the excretion of highly acid urine is irritating to the kidneys. Sansum, Blatherwick and Smith[14] in 1923 reported good clinical results with basic diets. Lyon, Dunlop and Stewart[15] by the same method also obtained favorable results. These English authors cite MacNider's[16] work, who observed that animals with easily damaged kidneys could be protected, in varying degrees, against the toxic effect of an anesthetic by the use of an alkali solution, and that failure to protect such a kidney during anesthesia was associated with a rapid depletion of the blood of its alkali reserve and the developing of an acid intoxication. Numerous observers have used alkaline medications and noticed clinical improvement. On the other hand, there is much experimental evidence to demonstrate the harmful effect of *excessive* alkali upon the kidneys and nephritis has been produced in this

manner. The conflicting findings are well interpreted by Stieglitz.[17] He has shown that alkalinization of the urine causes the renal cells to become acid in reaction and that acid urines are accompanied by alkaline renal cells. In nephritis the renal cells are acid regardless of reaction of urine. Any change in reaction either way results in greater activity of the secreting cells of the convoluted tubules. But too much stimulation may be irritating to an already damaged kidney. Neutralization of the urine would seem theoretically to be the most ideal.

We want to review briefly three case histories illustrating a liberal intake of protein in nephrosis and nephritis. The first case, one of nephrosis, is that of Mr. C. E. G., age 64, first admitted to the Geisinger Memorial Hospital February 8th, 1927. Past medical history was positive for pneumonia in 1920 and influenza in 1917. He enjoyed good health until 3 years before admission. He had been unable to work for two years, was on a nephritic diet, had gradually grown weaker, had nocturia 3-4 times, frequency during the day, edema of lower extremities, ascitic fluid 3 + and a blood pressure of 190/98. Urine contained 1 to 4 + albumen, hyaline and granular casts, no R.B.C., and specific gravity varied from 1.010 to 1.024. phenolsulphophthalein test showed 38.4% at the end of the first hour and 20.5% at the end of the second hour, creatinin was 1 mg., urea nitrogen 10 mgs., and non protein nitrogen 29.6 mgs. per 100 cc. He was placed on a diet of 40 grams of fat, 150 grams of carbohydrate and 240 grams of protein. When he was discharged fifteen days later all edema had disappeared, also the albumen in the urine. Blood pressure was 170/100. He felt like a new man. He has been in the hospital twice a year since for check-up. Blood pressure runs in the neighborhood of 150 systolic. He enjoys good health. All dietary restrictions were removed one year later. Since that time he has followed the dictates of his own appetite.

Case No. 2.—Mr. J. B., aged 50. The patient was admitted to the Geisinger Memorial Hospital Nov. 22, 1930 complaining of swelling of the legs and subocular edema of several weeks duration. He gave no history which would suggest an etiology, but we found badly diseased tonsils upon examination. On admission his blood pressure was 200/110; his non protein nitrogen 46.1 mg; his phenolsulphophthalein elimination 13.7% the first hour and 9.5% the second hour; his urine showed 3 + albumen, hyaline and granular casts and 1 + white blood cells. He was in the hospital for twenty weeks and during that time various diets were used and their effects carefully noted. You will observe from chart No. 1 that the non protein nitrogen which is a recognized measure of kidney function, was not appreciably affected by the amount of protein in the diet. The patient's general health improved and he left the hospital in good spirits. He was in for re-examination in June 1931, was enjoying fairly good health. Blood pressure was 152/92. We feel that he did better on a liberal diet than could have been expected on the old nephritis régime. Examination of urine 4-15-32 showed a negative urine except for a trace of albumen—sp. gr. of 1.013 —Phenolsulphophthalein eliminated was 45% 1st hour and 16% second hour. He is not cured but able to work daily.

Case No. 3—L. W., aged 10 years. Admitted to the hospital March

3, 1932 and still a patient at the time of this writing, April 20th, 1932. P. M. H. Scarlet fever in 1925, rheumatic pains left ankle for past four weeks. Chief complaint: "Puffy face." Well until four weeks before admission when he developed sore throat with acute anterior and posterior cervical adenopathy. On Feb. 28th parents first noticed that the face was swollen. Edema increased from that time until he was admitted. No nocturia or frequency since onset of illness. Physical examination showed a lad of ten well developed. 1 + edema. Blood pressure 160/132. Temperature fluctuated between 98² and 100. Gradually settled down to near the normal. Urine upon admission contained a heavy cloud of albumen, few hyaline and granular casts and specific gravity of 1.015. He eliminated during the first four days in the hospital a total of 22 grams of albumen. The amount eliminated daily from that time on has gradually dropped until at the present time he is getting rid of less than 1 gram a day. Casts continued to occur but fewer in number. Red cells occurred in the urine on the fourth day after admission in a rather heavy shower and from that time until the present they varied from none to 2 +. On March 22, 1932 blood chemistry showed plasma fibrinogen 0.406%, albumen 3.09% and globulin 2.81%. When this examination was made the patient was eliminating two grams of albumen daily but edema had disappeared prior to this examination. On March 4, 1932 non protein nitrogen was 54 mgs., on March 19, 1932 it was 40 mgs., and today it is 46 mgs. On April 9, 1932 the plasma fibrinogen was .419%, albumen 5.09% and globulin 4.3%. At this time the patient was eliminating a little over a half gram a day. You see, therefore, that the depletion of plasma albumen which was noted earlier in the illness has been corrected and as one would expect the amount of albumen eliminated was proportionately less. In other words the kidney is retaining the serum albumen. This patient has been kept on a regular house diet during his illness. In view of the fact that this is such an acute nephritis apparently of the infectious type, one must be cautious in prognosis. You will see from the first blood examination that the globulin also was rather depleted and as stated earlier in the paper this ordinarily is not a good prognostic sign. Blood pressure today is 144/110.

Before concluding it might be well to say a word concerning the special laboratory data which has been indicated from time to time in the above paper. Except for purposes of research, we can see no indication for carrying on extensive blood studies in all cases of nephritis. If this were necessary it would mean that the cost would be prohibitive to the majority of people, and could not be carried on except in institutions with very special laboratory equipment. Clinical observations and urinalysis in nephritis can largely supplant special laboratory work.

SUMMARY AND CONCLUSIONS

Since February 1927 we have employed a nephritic diet only for experimental purposes. Our experiences convince us that the nephritic does better, that there is less secondary anemia, asthenia is much less marked, the conviction of invalidism is not so noticeable to the patient, friends and relatives, and the patient enjoys life much more, if he is

permitted a liberal intake of protein in accordance with his own food desires.

BIBLIOGRAPHY

1. Epstein, A. Am. Jr. Med. Sc. "Edema in Chronic Nephritis." Vol. 154. Pp. 638. 1917.

2. Christian, H. A. J. A. M. A. "Nephrosis." Vol. 93. Pp. 23-25. 1929.

3. Elwyn, Herman. Am. Jr. Med. Sc. "Some Present Day Concepts in Nephritis." Vol. LXXIX. Pp. 149-166. 1930.

4. Thomas, W. A. J. A. M. A. "Source and Rôle of Urinary Protein in Nephritis." Vol. 97. Pp. 1055-1056. 1931.

5. McCann, W. S. Annals of Int. Med. "The Many Sided Question of Protein in Nephritis." Vol. V. Pp. 579-583. 1931.

6. Newburgh, L. H., and Curtis, A. C. Arch. Int. Med. "Production of Renal Injury in White Rats by Protein of Diet." Vol. XIII. Pp. 801. 1928.

7. McClellan, W. S., and DuBois, E. F. Jr. Biol. Chem. "Prolonged Meat Diets With a Study of Kidney Function and Ketosis." Vol. LXXXVII: Pp. 651. 1930.

8. Thorpe, E. S. Personal communication.

9. Kern, R. A. Annals of Int. Med. "Diet as a Factor in the Etiology of Anemia." Vol. 5. Pp. 729-739. 1931.

10. Starling, E. H. Jr. Physiology. "The Fluids of the Body." Vol. 19. Pp. 312. 1896.

11. Calvin, J. K., and Goldberg, A. H. Am. Jr. Dis. of Children. "Plasma Proteins and Edema." Vol. 42. Pp. 314-327. 1931.

12. Barker, M., and Kirk, E. J. Arch. Int. Med. "Experimental Edema (Nephrosis) in Dogs." Vol. 45. Pp. 319. March. 1930.

13. Moore, N., and VanSlyke, D. D. Jr. Clin. Investigation. "Relationships between Plasma Specific Gravity, Plasma Protein Content and Edema in Nephritis." Vol. 4. Pp. 236. 1927.

14. Sansum, W. D., Blatherwick, N. R., and Smith, Florence. J. A. M. A. "Basic Diets in Treatment of Nephritis." Vol. LXXX. Pp. 883. 1923.

15. Lyon, D. M., Dunlop, D. M., and Stewart, C. P. Lancet "Alkaline Treatment of Chronic Nephritis." Vol. 2. Pp. 1009-1013. 1931.

16. MacNider, Wm. deB. Jr. Ex. Med. "Acute Mercuric Chloride Intoxication." Vol. XXVII. Pp. 519. 1918.

17. Stieglitz, E. J. Arch. of Internal Med. "Histologic H-ion Studies of the Kidney." Vol. 33. Pp. 483. 1924.

——— Arch. of Internal Med. "Alkalies and Renal Injury." Vol. 41. Pp. 10-17. 1928.

DISCUSSION

Dr. Wm. deB. MacNider (Chapel Hill): I wish in the first place to congratulate the Medical section and the State Society on the privilege which they have had of hearing a most interesting subject discussed by an individual of learning who combines in a most satisfactory fashion laboratory findings and experimental medicine with the handling of a sick individual. Studies such as he has presented have a tendency to upset our preconceived notions concerning the handling of certain types of Bright's disease.

In the case of most of us when we think of Bright's disease we focus our attention solely on the kidney, and rarely get the conception that in general the kidney is only one of the organs which is participating in this generalized disturbance. This is quite natural because we can obtain from the kidney, through an examination of the urine, evidence of a departure from the normal, while it is more difficult to get such evidence from changes in other organs and the connective tissues of the body.

I often wonder what would have happened if Richard Bright, instead of examining the urine for albumen would have examined the bile for this substance. Albumen is found in abundance in the bile and certain types of renal disorders, especially the type which Dr. Ervin has discussed, the so-called nephrosis. If Bright had done this we would very likely have been calling a liver disturbance Bright's disease. This all goes to show that not infrequently an examination of the urine, as isolated from other examinations, has led us away from the main source of a disturbance which happens to show itself as a renal disorder. It is extremely easy to find some departure from the normal in the urine and then infer that the kidney is the sole cause for this disturbance. In Bright's disease, as well as in most other departures from the normal, in an experimental animal or in a sick individual, we have to try to see the organism as a whole in order to get the complete story. I like to think of a physician as a biologist who attempts to see the sick individual not in an isolated fashion in terms of his kidney, his prostate gland or his brain, but one who takes the entire organism into consideration in coming to a conclusion as to the cause for even an isolated departure from the normal.

In the type of renal implication which Dr. Ervin has concerned himself with the nephroses, the primary disturbance is likely far removed from the kidney, and has its origin from some unknown cause in the blood and tissue juices.

Volhard and Fahr first pointed out that in the nephroses the tubular epithelium was the primary source of the kidney injury, and it was their feeling that the injury persisted in this tissue. This is likely true at first but later the vascular tissue becomes implicated in the pathological picture. After these observations when the organisms as a whole became the subject of study it was found that the first change developed in the physico-chemical status of the blood and tissue juices, which resulted in upset in osmotic pressure and a retention of fluid by the tissues, which resulted in one of the outstanding symptoms of a nephrosis, namely, a marked edema. Laboratory investigations, which were finally applied clinically by Epstein, pointed out that in such a type of kidney injury there should be no restriction of protein intake, but on the other hand an increased consumption of proteins in order to help readjust the disturbance of osmotic pressure, which would lead to a re-absorption of the fluid from the tissues, and in case the kidneys were not too severely damaged, to an elimination of the water with a disappearance of the edema. These observations on osmotic pressure were of a very fundamental nature, because they concerned themselves with one of the physico-chemical states in the organism which is maintained during health

at a point of extreme exactness, and which is essential for the physiological life of the organism.

There are at least two other conditions in the body which are maintained at a point of exquisite exactness in order that life may go on in a normal fashion. One of these is body temperature, and the second is the stabilization of the acid base equilibrium of the blood and tissue juices. When any one of these fundamental states of the body becomes disturbed, osmotic pressure, temperature or acid base equilibrium, there exists a departure from the normal, the establishment of a diseased state which is reflected in certain symptoms constitute the pathological physiology which is going on in the disturbed organism.

Again I would like to congratulate the Society upon the privilege which they have had in hearing such a clean-cut and such a commonsense paper about such a difficult subject. It tells again the old, old story of the advancement which comes in clinical medicine when even abstract scientific observations can be applied to the sick individual. (Applause)

Chairman Smith: Gentlemen, is there any further discussion of Dr. Ervin's paper? I will have to ask you to make your remarks short.

Dr. S. W. Davidson (Charlotte): It has recently come to my attention how important it is to maintain a protein balance in a nephritic case. About three weeks ago there was referred to me a boy 17 years old who was thought to have mercury poisoning. He had been ill, seriously ill, for ten days. It seemed to me it was incompatible with his symptoms that he could be suffering from mercury poisoning.

On studying the case we found that he had 228—310 milligrams per 100 cc.'s of blood. His blood pressure was about 160 systolic and 100 diastolic. His eye grounds showed no choking of the discs. A spinal puncture showed no increase of intracranial pressure. The only change was a three plus globulin in the analysis of the spinal fluid.

He had a series of convulsions, he had been vomiting blood. We then were dealing, I think, with a case of acute nephritis. On examining the urine we found that a heavy cloud of albumen was present, red cells, leukocytes, and at the time of the original examination no cast was found. However, on subsequent examination many granular casts were found.

He had no anuria. He was placed on the Anderson diet and temperature control. As you recall, the Anderson diet is made up of gelatin, orange juice and water. That is supplemented by a gruel. After four days of ministration, giving an ounce and a half every fourth hour, this boy had a series of convulsions; he had previously been studied at the State Hospital in Raleigh for epilepsy.

Now I am not able to rule out the presence of epilepsy, but when the blood nitrogen was reduced to a point of 1-14 milligrams per cc. of blood he went into violent convulsions which remained for 18 hours. It was necessary to control him by putting him into a straight jacket.

I was wondering if in my attempt to treat him by the administration of hypertonic glucose and saline intravenously three times a day if I was not reducing the protein in his blood too rapidly and thus caused this cortical irritation, because he went into a convulsive seizure that simulated the convulsions that occur in decerebrated animals.

We were more cautious in sweeping out the kidneys by our hypertonic glucose, and when we stopped reducing the protein so rapidly, why then we found that there was less cortical irritation.

This boy was dismissed from the hospital before I came here with a blood test of 16 and a creatinin of 1.2.

The question, then, because of his anemia was the proper method of combatting this. I resorted to the use of liver extract intramuscularly and found that we got a very satisfactory response without increasing the blood pressure and without getting any reaction whatsoever.

Now what are we dealing with there? Why does he have, with the sweeping down of his protein, a symptom that throws him into a convulsive seizure? There is no evidence we can find in studying his eyegrounds, there is nothing that we have found in studying his spinal fluid pressure to show what is the cause of the cortical irritation.

Therefore, as my former chief, Dr. MacNider has pointed out, this is a systemic condition, and we should not focus our attention on the kidney alone but we should look elsewhere.

Now this boy is put on a normal diet, a protein balance of not less than 60 grams. I don't know what the end result will be, but I am astounded that this boy has responded. I give myself no credit whatsoever for the accomplishment of this thing, but I am frank to say that I don't understand the condition entirely.

Chairman Smith: I will ask Dr. Ervin to close the discussion.

Dr. C. E. Ervin: I just want to thank Dr. MacNider for going into the fundamentals of the subject a little more in detail than I was able to do in my paper. Also I want to thank Dr. Davidson for his discussion.

Chairman Smith: Gentlemen, the next paper on the program is "The Contributions of Biological Chemistry to Clinical Medicine," by Dr. I. H. Manning of Chapel Hill. (Applause)

Dr. I. H. Manning: I dislike very much to inject into this exceedingly practical program any purely theoretical considerations, but I spend most of my time on theories. You have already witnessed some excellent illustrations of some of the contributions of biological chemistry to clinical medicine. Dr. Smith has warned me that I can have only a limited time, so I am going to read my paper rather than recite it.

CONTRIBUTIONS OF BIOLOGICAL CHEMISTRY TO CLINICAL MEDICINE

By Dr. I. H. Manning, Chapel Hill

The improvements in the practice of medicine may be attributed to an increasing knowledge of physiologic and pathologic processes, a very remarkable development of the aids to diagnosis, a recognition of the importance of an adequate and properly proportioned diet, and the discovery of specific therapeutic agents. To all of these biological chemistry has made fundamental contributions, but only within the past few years has it found its way from the research laboratories into the hospitals and become available to the general practitioner.

I wish to say at the outset that I am conscious of the fact that a large per centage of the patients under the care of the general practitioner do not present diagnostic problems. On the other hand there is a small group, who, in spite of all modern developments, push us squarely "against the wall." The latter group, however, is becoming smaller and the former group is bringing us some surprises, if not an occasional shock. I am also conscious of the limitations surrounding the general practitioner in an attempt to use the aids offered by biological chemistry, but I feel confident that these limitations are disappearing slowly but surely.

It is obviously impossible in the time at my disposal to discuss all of the many contributions of biological chemistry to clinical medicine, but I shall attempt to point out briefly some that seem of special interest. In 1905-6 there were in this country three significant publications. First, "The Journal of Biological Chemistry" under the editorship of Abel & Heater, began its career, not primarily concerned with clinical problems, but with the development of biological chemistry as a distinct branch of chemistry. Second, the publication of the "Science of Nutrition," by Graham Lusk and the "Respiration Calorimeter" by Atwater and Benedict, who greatly extended the investigations begun by Voit and Pettenkofer and contributed extensively to our knowledge of nutrition. Third, the publication in the American Journal of Physiology (Vol. 13) of the Analysis of Thirty Normal Urines by Otto Folin who was at the time research chemist for the McLean Hospital at Waverly, Massachusetts. The services of a research chemist of the calibre of Dr. Folin in a hospital was in this country, a most significant event—an evidence of an appreciation of the possibilities of chemistry in the solution of clinical problems.

The significance of this paper of Dr. Folin lay in the adaptation and modification of analytical methods by which the quantitative analysis of urine became an accurate and fairly simple procedure. The quantitative analysis of urine, except in the determination of sugar, has never been of great clinical usefulness, but it ultimately led to "A System of Blood Analysis" published by Folin & Wu in the Journal of Biological Chemistry, Vol. 38, 1919. There is in my judgment no single laboratory procedure which has contributed more to clinical medicine than a quantitative blood analysis, and this "system" so simplified the procedure as to make it generally available. Important contributions have been made by F. R. Benedict, VanSlyke, Tisdall and others which have greatly extended its usefulness. The clinical conditions in which it has been particularly useful are:

First. In renal disease: The determination of the total non-protein nitrogen (N. P. N.) or urea is one of the most dependable tests of renal function. (Peters and VanSlyke advocate the blood urea clearance test which in effect is a comparison between the blood urea and the urine urea during approximately the same period.) The persistent presence of a blood urea in excess of forty milligrams per 100 cc., when the specimen is drawn 12-16 hours after eating, indicates a renal deficiency, and the higher the urea level the greater the deficiency. It does not make the diagnosis of nephritis, but it does mean that the kidneys are

not eliminating as they should. On the other hand, the absence of an excess of blood urea does not exclude nephritis, but it does mean that whatever the condition of the kidneys, they are performing their functions adequately. We know, of course, that this may happen in advanced nephritis. The determination of uric acid and creatinine are less helpful.

Second. In diabetes: The determination of the blood sugar is much more dependable in the diagnosis of diabetes than the determination of the urine sugar. It establishes at once the presence or absence of a hyperglycemia and differentiates between a true diabetes and a renal glycosuria. Moreover, a persistent blood sugar level in excess of 120 mgrms per 100 cc., which in the majority of patients would not be associated with a glycosuria would suggest a potential diabetic—a deficient functioning of the island cells which may be expected to increase. It is equally important to discover a low blood sugar. Dr. Cammidge reports in the British Medical Journal (May 3, 1930) 200 cases in which the blood sugar level was below 70 mgrms. In many there were no symptoms; in others bilious attacks, morning headaches, neurasthenia. Dr. Seale Harris, of Birmingham, reports (Journal American Medical Association 83, 729, 1924) several cases of hypoglycaemia in which there were hunger, weakness, nervous instability and exhaustion one or more hours before meals. He attributed the hypoglycaemia to a hyperinsulinism. Womack & Graham reported a case of adenoma of the pancreas in which there were severe attacks of "insulin shock" relieved by the usual treatment with glucose. It would seem, therefore, that the blood sugar level is a fair index to the function of the island cells.

Third. In Parathyroid Disease. Disease of the parathyroid is comparatively rare. Perhaps the most common is the tetany or spasmophilia of children, occurring especially in February and March. It is interesting to note, however, that the determination of the calcium in the blood is the most reliable test of its function. Collip has concluded from his experiments that the function of the parathyroid is to regulate the calcium level in blood. The normal level is at 10 mgrms. per 100 cc., and this may not vary much to either side without more or less serious disturbances. Thus when it falls to seven mgrms. there are symptoms of motor irritability and at 5.5 mgrms. there will be definite tetany. (Marriott).

In recent years a few cases of hyperparathyroidism, in nearly all cases from adenoma of one of the glands, have been reported. Thirst, polyuria, gastro-intestinal upsets, loss of flesh, seem to be the common symptoms (osteitis fibrosa cystica.) The occurrence of a cystic rarefication of bone found on X-ray examination. The diagnosis is made by the presence of an excess calcium in the blood and the tumor, which is rarely large. The clue is the hypercalcaemia—Collip has shown that an injection of parathyroid extract will raise the blood calcium level to a fatal height.

Fourth. Diseases of the Liver: The liver has been charged with many of the ills of the flesh. "A torpid liver" is a familiar diagnosis in tropical and semi-tropical countries. Certainly there is great need for a dependable test of liver function. Mann has shown that the bile pig-

ments are formed elsewhere than in the liver and it is a function of the liver to excrete the pigments. Their accumulation in the blood would therefore indicate a faulty functioning liver. The index is the quantity of bilirubin which can be detected by the Van den Bergh or the icterus index. The normal level is 0.1-0.5 mgrms. per 100 cc. Visible jaundice occurs when there are 1.5 to 2 mgrms. Whatever may be the cause, the accumulation of bile pigments in the blood means faulty liver function.

Fifth. After some years of confusion the bio-chemists—especially L. J. Henderson and VanSlyke—have clearly defined an acidosis and an alkalosis, and VanSlyke has divised a fairly simple method by which the existence of one or the other may be determined. The index is the carbon dioxide in blood which is normally between 55 and 65 vols. per cent. Below 55 the acidosis progressively increases and above 65 the alkalosis progressively increases. The physician who has reasonably good laboratory facilities at his service does not need to guess whether his patient has an acidosis or not. The acid-base balance is theoretically easily disturbed, but practically it is not disturbed as often as formerly thought. In infancy, in diabetes and in obesity there is apt to be a faulty metabolism of fatty acid secondary to an insufficient oxidation of carbohydrate which results in an accumulation of the "acetone bodies," and ultimately a loss of alkalies.(This type of acidosis is known as a *"productive"* acidosis and is to be distinguished from a *retention* acidosis found in some cases of nephritis. As the name indicates, the latter is due to a failure of the kidneys to eliminate such non-volatile acids, as acid salts, mainly acid sodium phosphate (Marriott). As a result of the better understanding of the acidoses the treatment has become distinctly more rational. Dr. Joslin, who began the use of sodium bicarbonate in diabetic coma, now says that sodium bicarbonate has no place in the treatment of diabetes and Marriott has essentially the same opinion of sodium bicarbonate in the treatment of a retention acidosis in children. The rational treatment of the productive acidosis is with glucose with or without insulin, and in most cases with insulin in carefully guarded doses.

Oedema: The functions of the blood proteins have not been entirely understood. Starling, however, showed that they had much to do with maintaining the water balance between the blood and the tissues. It has been shown by Moore and VanSlyke, Booker and Kirk and others that when the blood proteins are reduced from a normal of 7 to 5-5.6 oedema occurred. Inanition oedema, the oedema of nephrosis, etc., may be so explained and may be rationally treated with a high protein diet.

Bio-chemistry has brought feeding within reach at least of scientific accuracy.

Infant feeding, the management of obesity and diabetes and an increasing number of diatetic deficiency diseases have been vastly improved by a better understanding of the metabolic processes and food requirements. An adequate and proper diet to meet any ordinary clinical exigency can now be worked out with a high degree of accuracy on a basis of accumulated scientific data which has been abundantly verified by clinical experience.

An important contribution of biological chemistry to clinical medicine

is a convenient method of determining the total heat production, the total metabolism, or as it is commonly called, the "basal metabolic rate." Obviously heat production is affected by so many circumstances that the conditions of the test must be as nearly constant as possible. An immense amount of investigative work begun by Voit and Pettenkofer in Munich and extended by Atwater and Benedict, Duboise and others in this country have made the determination of the basal metabolic rate available for the clinicians. One of the circumstances that particularly affects heat production (the B. M. R.) is the secretion of the thyroid. In the cretin or in hypothyroidism the B. M. R. may be 40% below the normal and in exophthalmic goiter it may be 75% or more above the normal. The thyroid secretion seems to regulate metabolism, and the determination of the B. M. R. furnishes a clue to thyroid function. A normal B. M. R. will exclude hypo. and hyperthyroidism.

One of the most remarkable developments in the field of nutrition has been the discovery and investigation of the vitamines. At the present time their chemical nature has not been found out, but it is safe to predict that the mystery will eventually be uncovered. Physiologically, their potency is of the order of the hormones, but fortunately they are widely distributed among the fruits and vegetables from which all of them seem to be ultimately derived.

In the field of specific therapeutic agents the contributions have been thyroid extract, or thyroxin, pituitrin, adrenalin, insulin, liver extract, parathyroid extract and more recently extracts of the cortex of the adrenal—all of which have solved some of the most difficult problems of clinical medicine. The use of the various ovarian extracts have seemed at times to have been useful therapeutic agents, but their physiological actions have not been consistent,—at least they cannot be regarded as specific therapeutic agents.

Dr. Claiborne Smith (Rocky Mount): I have a very limited amount of time and I am just going to present four charts to demonstrate some of the clinical cases that Dr. Manning has already discussed from a theoretical standpoint.

(Slide). The first chart is of a colored woman who was admitted to the hospital nine months pregnant in coma. She had been an old diabetic before. Her doctor followed her to the first six months of pregnancy. The urine became free of sugar. She drifted from his care and he was called to see her just before he sent her to the hospital and found her in coma. It is interesting to note that at no time during her stay in the hospital did she show sugar in the urine.

On admission she had the usual signs of diabetic coma, but the absence of sugar in the urine made it very intricate. Taking these things here from the top down, we notice that her blood sugar was 166. She had had nothing to eat for 26 hours. She had been vomiting. Her diacetic acid was on the scale of four. That is, it was not measured accurately but read by eye. Her blood urea was 72.

Now that in itself indicates a very heavy nephritis, but even more so in the case of pregnancy. For sometime I didn't know what was happening. The tests on the blood urea would be below 20 to 12 and 15. Only recently I was able to find out. The thing that told the tale in her

case was a plasma carbon dioxid of 22. Dr. Manning just told you that about 55 was normal and below 55 is considerable acidosis.

She had two things to contribute to acidosis. One was diabetes. The blood sugar was not very high. You see lots of blood sugars more than that, but that was a contribution. And the next thing was the impairment in the blood urea. She was put on insulin, routine treatment for diabetic coma, and then labor induced, and the third day she was delivered, still showing no sugar at all at any time. The plasma CO_2 gradually came up.

I want to call attention to the discrepancy between the curve of the diacetic acid and the curve of the plasma carbon dioxide. Dr. MacNider has repeated in several instances at this meeting that you have got to consider the function of the kidney—he alluded to it today—when you interpret it in the urine.

The diacetic acid dropped very low there. The chart here doesn't show it. Her kidney function was 33 per cent. She had had albumen, too, on the scale of four. This curve dropped way out of proportion. And I think that explains in itself the remark that he made that you have got to consider the function of the kidney when you interpret the findings.

(Slide) This was another patient who was admitted in coma. She gave the history of being fairly well and then had a severe headache and in about three hours time she was comatose. She had sugar in the urine and of course we thought diabetes. She had a blood sugar of 333 milligrams which seemed to confirm the thought of diabetes. She had a blood urea of 90, about 30 is normal, and that occurs in diabetes sometimes, too. When we got here to the plasma carbon dioxid it was 49 or practically normal.

So we had to get away from the blood chemistry as being the cause of the trouble. In doing a lumbar puncture we found that the spinal fluid was under 40 millimeters of mercury pressure and very bloody. She died. We feel that the blood chemistry could be excluded from the fact that the plasma carbon dioxid was practically normal and the spinal fluid was bloody.

(Slide) Dr. Manning mentioned the distinction between true diabetes and renal glycosuria. I have here the chart from two cases. They had no complaint; they had no increased thirst, no increased hunger, no loss of weight, but they noticed that from time to time they showed a little sugar in the urine. Both of them had a blood sugar of 123 milligrams. They were both given 100 grams of glucose by mouth on a fasting stomach. The diabetic immediately went up to 300, way up to 400, and at the end of the fourth hour was still way above 200. The nondiabetic did not go but to 160, and then came on down even lower than his former level.

It is to be noticed that he showed sugar at the end of the second hour when his blood sugar must have been around 160 or above. Neither one showed sugar on admission. That is when they first started. The diabetic showed sugar right along.

However, if this so-called renal glycosuria had shown sugar at each instance it would not have made any difference; but the curve is the important thing.

This happens to be a physician. I followed him for ten years. He hadn't shown any more signs of diabetes. I have another patient where Dr. Kelly found sugar in the urine in 1914. He runs pretty much the same curve, and that has been a good number of years. We don't know what these folks are going to do. They might flop over. We have not been able to follow them long enough.

(Slide) Dr. Manning mentioned Dr. Seale Harris describing what he called hyperinsulin anemia. As I remember he said that a patient would get so weak and hungry that he would have to have some food that he would almost faint or have to sit down on the side of the road. I saw a few of those cases and I tried to follow Dr. Harris but I couldn't entirely.

I think we had 11. So I ran curves on these 11 and here is a rather unusual thing, to me, but rather significant of that type of case. He is given 100 grams of glucose just for sugar test as the other was. Instead of the curve going definitely up, these cases either go just slightly up or maybe run around normal.

Now that brought up the question in my mind, is that a hyperinsulin anemia or is it hyperadrenalin anemia? These folks are usually undernourished, the metabolism is low, the blood pressure is low, they are easily fatigued. They are "hyper" everything else, and I wondered about the hyperadrenalin anemia. So I caught one with a blood sugar of 67 and gave him five milligrams of adrenalin, and an hour later I got his blood sugar up to 125. He did not get the relief that Dr. Harris mentioned in his cases from the fatigue and the weak knees, but we did get his blood sugar up, and of course we got his pressure up some, too. (Applause)

Dr. Wm. deB. MacNider (Chapel Hill): Dr. Manning's résumé of some of the contributions of biological chemistry to clinical medicine is both interesting and helpful. Dr. Smith's presentation of cases illustrating some of the applications of biochemical procedures tends to emphasize the importance of biochemical methods in clinical medicine. The first case which Dr. Smith presented is an extremely interesting one, primarily because it deals with certain observations during pregnancy. Very little work has been done on the metabolic upset which may develop during the state of pregnancy. The assumption has been, which is generally erroneous, that the pregnant state is a normal one; that it is physiological, and therefore needs no investigation. Perhaps in the majority of instances this condition shows very definite departure from the normal. There is no division of clinical medicine in which research is more needed, and could be of a more interesting nature than during the state of pregnancy.

The phenolsulphonephthalein output in the urine, for instance, as valuable as it is in many clinical conditions associated with a renal injury, is notoriously unsatisfactory in the pregnant state, which is very likely due to the fact that in such a state there is a liver injury as a result of this dye is not in part destroyed, so that it reappears in the intestine, is absorbed, and its elimination by the kidneys is increased. Not infrequently in such a condition the blood urea may be very low, which would also suggest a liver injury as its explanation. The usual interest which

the physician has in determining a departure from the normal during pregnancy is in examining the urine for albumin and for certain ketone bodies, such as acetone and diacetic acid. In a certain percentage of cases the appearance of albumin in the urine is more or less of a terminal event. We should be interested in what happens months before the appearance of this normal ingredient of the urine which finally results in albuminurea.

The detection of ketone bodies in the urine may or may not be an indication of the development of an acid intoxication. If the kidneys be normal when such bodies spill over into the urine it may indicate a part of a metabolic disturbance which results in an acid intoxication. On the other hand, and of the utmost importance, if the kidneys are sufficiently injured these bodies are retained, the urine may even give a negative reaction for them, while at the same time they are progressively piling up in the blood. In determining the existence of an acid intoxication the variable which is found in the kidneys has to be eliminated, and we should go to the blood stream, or to an analysis of alveolar air, to get an accurate expression in this connection of what is going on in the organism.

HYPOTHYROIDISM

By W. T. Rainey, M.D., F.A.C.P.
Highsmith Hospital, Fayetteville, N. C.

The term "hypothyroidism" brings to mind those conditions caused by a frank deficiency of thyroid secretion attended by equally frank manifestations, the best known of which are cretinism and myxedema.

In 1874 Gull described the cretinoid state and eleven years later Schiff initiated the treatment of thyroid deficiencies by feeding the desiccated glands. Later Magnus-Levy was able to raise the rate of oxygen and carbon dioxide exchange through the lungs by administering thyroid preparations and, in 1904, showed the relationship existing between thyroid activity and basal metabolism.

The thyroid is the best understood member of the so called glands of internal secretion but most of the work on it has pertained to the results of an overactivity of that gland.

Recently Higgins and others noted the close relationship existing between a lowered basal metabolic rate and a certain chain of signs and symptoms. Investigations by them have aroused interest in a condition which, while not as pronounced as myxedema and cretinism, is due to a deficiency of thyroid secretion and is relieved by thyroid extract. This has been termed "hypothyroid state."

Not all cases with a lowered basal metabolic rate can be placed in this group for there are extra-thyroid influences which depress it. Among the endocrine system may be mentioned the gonads, pituitary and suprarenals, all of which, in association with the thyroid, may decrease the rate of oxygen and carbon dioxide exchange in the lungs. Certain psychic states lower the rate, but the question arises here as to whether or not these psychic states are not the result of some endocrine imbalance.

There is another group of patients who have a low basal metabolic rate and to whom thyroid medication gives no relief. These are the constitutional asthenics with symptom-complexes of autonomic dysfunction. They seek medical attention on account of gastric symptoms, headaches, "nervous breakdowns," etc. However, the low basal metabolic rate in these cases introduces a probable endocrine factor possibly an adrenal insufficiency, as an explanation for the symptoms.

The diagnosis of incipient hypothyroidism is at times difficult and, strange as it may seem, is sometimes confused with an early hyperthyroidism. A lowered basal metabolic rate alone is not sufficient evidence of hypothyroidism but when associated with one or more of the cardinal signs or symptoms of the condition, the diagnosis is fairly certain. Myxedema, on the other hand, is not hard to diagnose because its signs and symptoms are constant. Consequently we have three methods of determining the presence of hypothyroidism: (1) Positive clinical signs of thyroid deficiency, (2) lowered basal metabolic rate, (3) a therapeutic test.

This report is based on fourteen cases taken from records of the Highsmith Hospital in which a diagnosis of incipient hypothyroidism was made and thyroid therapy relieved. It does not include others who had a lowered basal metabolic rate but in whom there was an absence of any of the cardinal signs or symptoms. Some of these were given thyroid extract without relief.

RESULTS OF OBSERVATIONS

Age—The ages by decades were: from 10 to 20, two cases; from 20 to 30, four cases; from 30 to 40, four cases; from 40 to 50, three cases and from 50 to 60, one case. Seven, or 50% of these were between the ages of 30 and 50, which made them near the menopause and may have had some relation to ovarian activity.

Sex—There were twelve females and two males.

Basal Metabolic Rate—This varied from -10 to -38. There were two with the rate below -30 and these had some areas of edema which made them probably myxedematous. The most important group and the ones which derived most benefit were those included within -12 and -23 which comprised 11 of the cases observed. Patients in this group usually come complaining of symptoms referable to other conditions and there seems to be no relationship existing between the percentage of lowering of the basal metabolic rate and the severity of the symptoms.

Relation of Pulse Rate to Basal Metabolism—In cases of myxedema there is a lowering of the pulse rate but in eight of the fourteen cases observed, the pulse rate was above 70. This may be accounted for by the fact that in 7 of them there were other pathological conditions present which probably influenced it. These consisted of lesions in the gastro-intestinal tract, female generative organs and cardio-vascular system.

SIGNS AND SYMPTOMS NOTED

Dryness of the skin and hair and abnormal distribution of the hair, while not as marked as in myxedema, was present in seven. Under

thyroid therapy, the change in the hair is especially noticeable, passing from a dry lusterless state to one of luster and live appearance. In two of the patients in this group this change was remarked on by the patient and family. In these two, there was a pronounced urticaria which, as long as their basal metabolic rate was normal, did not appear. Some writers list as one of the causes of urticaria a deficiency of thyroid secretion which probably explains this.

Constipation was present in eleven and six complained of various gastro-intestinal disturbances, the most prominent of which were "gas" and indefinite pains in the abdomen, not referable to any definite pathological condition. At times the pain was severe, was not constant but sometimes confused the diagnosis. There were, likewise, pains in other parts of the body not referable to any definite condition. Headache, more or less severe, was present in six.

Two were overweight and had areas of edema. These also had the lowest basal metabolic rate but could not be classed as cases of myxedema. Five were underweight.

Fatigability was a prominent symptom in ten but was complained of to a certain extent in twelve. On thyroid therapy the improvement in this symptom was ofttimes remarked on by the patient.

Five complained of coldness to such an extent they were uncomfortable.

Nervousness and emotional disturbances, like fatigability, was a prominent symptom and was present in ten. These were manifested in various ways as crying, periods of depression, a sense of constriction about the head and neck and other evidences of a neurosis. In some of them they were so pronounced that early hyperthyroidism had to be considered.

Dysmenorrhea was present in two and disappeared after treatment. In two others the menses were irregular as to time and duration.

The blood counts were relatively normal and physical examination was essentially negative.

In some cases with a lowered metabolic rate, without any of the above signs and symptoms, the use of thyroid extract was of no benefit. This leads one to believe that incipient hypothyroidism is a definite clinical entity. The treatment of these cases is not only concerned with the administration of thyroid extract but must include psychotherapy and suitable hygienic measures.

The hypothyroid state lowers the bodily resistance, making it more susceptible to other lesions and causing those already present to become more pronounced. These, in turn, may contribute to lowering the thyroid deficiency still more. Any abnormal condition found should be corrected and the patient put in the best possible condition.

On account of interference with the heat regulating mechanism, these patients are more susceptible to cold and, particularly in the winter months, may develop lesions referable to this. They tire easily and, as a result, do not take much exercise. Proper clothing and exercise should be prescribed to combat these. The diet should conform to their needs, taking into consideration their weight and sedentary habits.

As has been stated above, these patients are very nervous and emo-

tional. They tire easily which adds to their depression and causes them a great deal of concern. They must be reassured and handled in a sympathetic manner, or else the glandular therapy will not produce the improvement contemplated.

Glandular therapy is the most important part of the treatment and should be carried out judiciously. The metabolic rate cannot be depended upon to determine the amount of thyroid extract needed nor is there any index as to dosage before it is started. The dose is variable, depending upon intercurrent conditions. As in the myxedema cases, it is not necessary to start with large dose and then work out a maintenance dose for usually one to two grains daily of the desiccated thyroid gland is sufficient, given in a single dose. Any preparation which conforms to the U. S. P. standard of iodine content is suitable. The clinical condition of the patient should be carefully watched for any evidence of early hyperthyroidism, such as loss of weight, tachycardia, muscle tremors, palpitation and lowered carbohydrate tolerance, along with other signs. Sufficient extract should be given, however, to supply the deficiency, the amount necessary for this to be determined by the improvement in the patient. Should any pathologic condition develop, it may be necessary to diminish or even discontinue the extract for the time being. The length of time the extract should be administered will vary in different individuals, but usually, three to four months treatment will suffice.

Basal metabolic determinations should be done every few weeks at first. These are not absolutely necessary but will corroborate the clinical evidence as to progress.

CONCLUSIONS

1. Incipient hypothyroidism is a definite clinical entity.
2. A lowered metabolic rate without one or more of the cardinal signs or symptoms is not sufficient evidence to make a diagnosis.
3. Some of the so-called neurotics will come under this group.
4. It is usually relieved by thyroid extract, suitable hygienic measures and psychotherapy.

BIBLIOGRAPHY

Higgins, Wm. H., Management of the Hypothyroid Patient. Southern Medical Journal, October 1927.

Higgins, Wm. H., Incipient Hypothyroidism. The Journal of American Medical Association, October 3, 1925.

Sturgis, C. C. and Whiting, W. B., Treatment and Prognosis of Myxedema. The Journal of American Medical Association, December 25, 1925.

CHAIRMAN SMITH: Gentlemen, is there anything else to come before the Section? If not, the next thing on the program is the election of a Chairman for next year. Nominations are now in order.

DR. WILLIAM B. DEWAR (Raleigh): Mr. Chairman, I should like to nominate Dr. Whitaker of Kinston.

CHAIRMAN SMITH: Dr. Paul Whitaker of Kinston is nominated. Is there a second?

Dr. F. R. Taylor (High Point): I second the nomination.

Chairman Smith: Are there any further nominations?

Dr. W. H. Dixon (Kinston): I move that the nominations be closed and that Dr. Whitaker be elected by acclamation.

Dr. C. T. Smith (Rocky Mount): I second that motion.

Chairman Smith: Gentlemen, it has been moved and seconded that the nominations for Chairman be closed and that Dr. Whitaker be elected by acclamation. If there is no objection to that motion the Chair will cast the vote and declare Wr. Whitaker unanimously elected. I will ask him to come up and take the Chair. (Applause)

Dr. Whitaker took the Chair.

Chairman Whitaker: Gentlemen, I appreciate the honor which was entirely unexpected. I will endeavor to give a good program next year.

Is there any other business to come before the Section? If not, a motion to adjourn is in order so that the general session may convene.

Upon motion duly made and seconded it was voted to adjourn. Thereupon the Section on the Practice of Medicine adjourned at eleven-twenty-five o'clock.

SECTION ON GYNECOLOGY AND OBSTETRICS

WEDNESDAY MORNING, APRIL 20, 1932

The meeting convened at nine o'clock in Lecture Room "B," Hotel Robert E. Lee, Winston-Salem, Dr. Oren Moore, Charlotte, presiding.

CHAIRMAN MOORE: The Section on Obstetrics and Gynecology will come to order.

I am acting this morning in the place of Dr. John Watkins, Asheville, who is Chairman of this Section and who was called away suddenly last night. He asked that I present to you his regrets at having to leave, and his failure to be here this morning. We have a small gathering but, looking over the personnel, it seems to me to be a very representative group.

Before we go into the meeting proper I want to read a resolution to you which was presented to me as I came up by Dr. Ivan Procter, of Raleigh. This resolution has to my way of thinking a very important place in the business of the day and if you approve it we will take action so stating, or contrary.

The resolution follows:

"Whereas, it is the duty of the State Medical Society in its various Sections to promote the advancement of the art and science of medicine by addresses and exhibits, it is also its duty to propose and endorse and promulgate knowledge which will be of benefit to both the public and the profession.

"Whereas, it is an accepted fact that the obstetric morbidity and mortality rate in the United States is very high in comparison with other civilized countries, this Section in an effort by individual action and education wishes to lower the incidence of disease, the after-result of child bearing; be it

"RESOLVED, that the Section on Obstetrics and Gynecology of the North Carolina State Medical Society and its members and all members of the profession who practice obstetrics and gynecology advise and encourage their patients to have postnatal care equal to and on a par with world standardized prenatal care; that this shall include a routine follow-up examination of the breasts, the pelvic organs, by inspection and palpation, six weeks after delivery; any abnormalities such as a sore nipple, displaced uterus or eroded surface to be healed before the patient is given a discharge from the obstetrician's service. The profession is now agreed that such service is proper but fails to so advise and impress this need upon their individual patients, to the end that only ten per cent of mothers including those treated by competent physicians and in the best hospitals have this service. This results in the finding of erosions and infiltrations of the cervix in eighty per cent of all women who have borne children. If this chronic disease be a factor in development of malignancy then we have a great field for preventive medicine. Statistics show that four-fifths of all uterine cancer is lo-

cated in the cervix and eighty per cent of these cases are in women who have borne children. Be it further

"RESOLVED, that in order to detect pathological conditions of the cervix and other pelvic organs before they become deep-seated and chronic and especially to increase the findings of the number of cases of early cancer of the cervix, that we advise and teach the public and all women who have borne children to have a semiannual pelvic examination by inspection and palpation."

Usurping the prerogatives of the Chair, I want to speak on this a moment, then hear your reaction to it.

Dr. Procter doesn't presume to say that this is anything that is not known to you and me and all men who practice this particular branch of medicine. He only hopes, as I see it, in this resolution to awaken us anew to our responsibility and to urge us to impress the necessity of this upon the men who are doing most of the obstetrics. You know, we are not doing most of the obstetrics. Most of it is being done by the general practitioners. And Dr. Procter wishes to impress upon them the importance of just the things that he has accentuated here.

I think there will be no question in any of our minds as to the value of the procedures which he indicates and while they may seem rudimentary it is a well known fact that they have to be constantly brought to our own attention and to the attention of the profession as a whole or we begin to let them slip.

I have read the resolution. Is there discussion desired?

Dr. R. A. Ross (Durham): Mr. Chairman, I think that we should not only refresh our own minds but I think it would be worthwhile for particularly this Section to go on record as favoring such a thing, and I would like to, if it is in order, make a motion that we adopt this resolution and give it the proper publicity.

Chairman Moore: Is the motion seconded?

. . . The motion was seconded by Dr. George Johnson (Wilmington). . . .

Chairman Moore: Is there any further discussion on it?

. . . The motion was put to a vote and unanimously carried. . . .

Chairman Moore: It will be the duty of the Acting Chairman, I presume, to present this resolution to the properly constituted authorities of the Society who will be Dr. McBrayer, I presume. I will see that that is done.

The first paper scheduled under this Section is by Dr. George Johnson but by reason of the fact that he needs a lantern and the lantern is now in use in another Section we have asked Dr. Hamblen if he will take first place and he has kindly consented to do so. The title of his paper is, "Clinical Importance of the Female Sex Hormones." Dr. Hamblen as you know is connected with the Obstetrical Department of Duke University.

CLINICAL IMPORTANCE OF THE FEMALE SEX HORMONES

By E. C. Hamblen, M.D., Duke University

In January of this year the Council on Pharmacy and Chemistry of the American Medical Association omitted from their list of recognized remedies the last remaining ovarian preparations. The newer preparations of the active sex hormones have not been accepted as yet. In view of these two facts and since our attention has been centered upon the most interesting laboratory researches concerning preparations and the properties of these hormones, it would seem fitting for us to inquire as to the clinical importance of the preparations of these hormones available to us at present.

It is most satisfactory, perhaps, to discuss these hormones from four standpoints: (1) Pharmacologically, (2) Physiologically, (3) Endocrinologically, (4) Therapeutically.

The Pharmacologic Importance: In place of various obscure preparations of ovarian and anterior lobe hypophyseal tissue, we have been afforded hormones of proven activity and of known potency. These hormones have been standardized accurately by specific reactions of the genital tract of rodents. The ability to standardize these hormones has been of two-fold importance: (1) Our previous preparations have been shown to be without value; (2) we have been afforded specific hormones for experimental and clinical use.

The Physiologic Importance: Incomplete ideas which we have had in the past concerning female sex physiology have been clarified and a sounder appreciation of this mechanism has been attained. Such doctrines as that of the "primacy of the ovum" have been discarded and we have come to look upon the anterior lobe of the pituitary gland as the stimulator and regulator of the ovary. Endometrial proliferation has been proven to be biphasic representing the response to the action of the two ovarian hormones. In fact even the mechanism of the initiation of labor, which in the past has been theorized upon so obscurely, has yielded to the scientific inquiries of laboratory workers and we realize now that there is a definite balance between posterior pituitary oxytocin and theelin, the uterine stimulators, and the anterior pituitary ovarian stimulator and the corpus luteum progestin, the uterine protectors. The fact that both the ovarian and anterior pituitary hormones are excreted in the urine of pregnancy in large quantities has afforded a generous source for preparations and has made possible an animal test for pregnancy quite reliable and so simple as to be available to any practitioner who has at his disposal a syringe, a scalpel and a female adult rabbit.

The Endocrinologic Importance: A field of medicine which had suffered much from insincere and over-enthusiastic manufacturing chemists and from the ill-defined syndromes of anxious and impetulant patients welcomed advances which bid fair to furnish standardized specific sex hormones. There has arisen in this field a most productive optimism and a very keen interest in the fundamental work being done at present by the physiologist and the biochemist. Those who are com-

ing in contact with patients in whom there is apparent endocrinal dysfunction are seeking to better their diagnostic acumen and are attempting to purge their case protocols from poorly interpreted symptomatic improvements and to follow their patients more critically and to seek for more objective and laboratory evidence of progress. There is a strong tendency to weigh carefully each bit of reaction to treatment and the growing attempt to build up an exact scientific scheme of treatment from which definitive responses can be expected.

The experimental production of the characteristic pathological endometrium of idiopathic uterine bleeding and the definite proof that it is due to uniphasic theelin stimulation demonstrate a type of progress to be expected from work of this caliber.

The Therapeutic Importance: A number of reports have appeared concerning the clinical uses of these hormones. As is so often true with new and promising preparations, there has been a wide divergence in their applications. Reports have appeared concerning their usage in hemophilia, in retinitis pigmentosa, in Buerger's disease, in carcinoma, in various dermatoses, in migraine and in alopecia; most clinical experimenters, however, have confined the use of these hormones to the treatment of the various disorders of menstruation. Uniform results have not been obtained; patients have not been followed over periods of time sufficiently long; extraneous factors have not been excluded in most instances.

It cannot be stressed too strongly that patients should be carefully selected for treatment with these hormones. Following a most thorough study of the patient preliminary treatments should be instituted. The aim of these preliminary treatments should be the correction of constitutional, focal, metabolic, hygienic and dietetic abnormalities. It is essential that low basal metabolism be corrected and stabilized with thyroid extract. Patients should receive well regulated diets of high vitamin content. Focal infections should be taken care of. Anemia, if present, should be corrected. Poor personal hygiene and inadequate habits of exercise should be bettered. Constitutional diseases demand, naturally, treatment. It will be found that such a régime will correct a large number of menstrual disorders.

Following this preliminary stabilization of the patient, specific hormone treatments may yield results which are satisfactory to the patient and which allow definite evaluation. In the course of such treatments one should exclude subjective symptoms of the patient as criteria for evaluation of the patient's progress. This progress should be followed by hormone concentration tests of urine and blood, morphological studies of menstrual blood, microscopic examination of endometrial specimens when obtainable and a careful quantitative menstrual chart should be kept upon each patient.

It is difficult to estimate at the present time in any satisfactory manner the composite results of these hormones in therapeutics. Time, newer hormones, and more mature reflection will change undoubtedly our impressions. All patients with symptoms referable to natural or artificial menopause are unsuitable for evaluation of these hormones, for in these patients we must of necessity depend primarily upon symp-

tomatic relief and the unstable condition of the vegetative nervous system in these patients lends itself too readily to psychology and to suggestion. In no instance has there been a return of menstruation following its cessation as a result of natural or artificial menopause in spite of intensive treatments over relatively long periods of time with theelin. In conformity with Pratt's statement, "the less marked the ovarian deficiency the better the results," we have experienced excellent regulation of the menstrual cycle in patients with scanty (hypomenorrhea) and infrequent (oligomenorrhea) menstruation, while in the treatment of amenorrhea, both primary and secondary, initiation and continued regulation of the menstrual cycle have been accomplished in only a small percentage of our patients. We have apparently a quite satisfactory method of controlling idiopathic uterine bleeding by the use of the anterior pituitary sex hormones; in many instances regular menstruation does not follow control of the excessive bleeding. In no instance has it been proven that the endometrial pathology was changed by such treatments.

In conclusion we may summarize the clinical importance of the female sex hormones as follows: (1) Active, standardized preparations have been obtained for clinical use and the inactive ones have been branded useless. (2) These hormones have elaborated our concepts of female sex physiology and have given us a simple, reliable pregnancy test. (3) They have rescued female sex endocrinology from a condition not unlike pseudo-science and have placed it on a secure scientific basis. The first most gratifying success has been the establishment of the etiology of idiopathic uterine bleeding. (4) The chief therapeutic accomplishments of these hormones have been: (a) The ability of the anterior pituitary sex hormones to control idiopathic uterine hemorrhage; (b) the regulation of the menstrual cycle in patients with scanty and infrequent menstruation.

Chairman Moore: I am going to interrupt the order of business for a moment to appoint two committees which have been called to my attention. Dr. Ross advises me that it is the duty of the Chair to appoint these committees. The first one is a Nominating Committee and I am going to appoint on that Dr. Robert A. Ross, of Durham, Dr. J. L. Ranson, of Charlotte. They will retire at a time they see fit and bring in their report before the end of the session.

The second committee should have been appointed before the reading of this paper. That is a committee which passes on the papers for the Moore County prize. That committee selects from the papers presented at this Section the one to be offered for that award. That committee must necessarily be made up of men who are not presenting papers here. I will therefore appoint Dr. R. W. Spicer, of Winston-Salem, Dr. S. B. Bradford, of Charlotte, and Dr. Highsmith, of Fayetteville. I will ask you gentlemen to consider the paper that has just been read when you are making your report.

Now we will return to your paper, Doctor, and ask for discussion on it and I will begin that discussion by asking a question.

Chairman Moore: You made the statement in your paper that the endometrium pathology was not affected. I ask the question, Isn't it

reasonable to expect under this treatment that it should have been and will be affected?

Now, gentlemen, Dr. Hamblen's paper is open for you to discuss.

Dr. W. S. Bradford (Charlotte): Mr. Chairman, Gentlemen of the Section: I think Dr. Hamblen is certainly to be congratulated upon his paper and upon the work he has been doing. I have had the pleasure before of reading some of his case reports and I am sorry he didn't present any of them in his paper to show the type of result he has been obtaining.

I don't feel competent to discuss certain phases of his paper because he has had access to an unlimited supply of Parke Davis' preparations of Theelin and Antuitrin, because I think Antuitrin has only been on the market about a week. And as I say he has had opportunities to observe things that the rest of us have not had. But his conclusions certainly do carry out the conclusions of the other investigators in this field, notably, Zondek, and Novak and Hurd of Hopkins, Mazer and Blair of Philadelphia and many other investigators.

It appears as one of these men has previously said that the gynecology of tomorrow in a great many cases is going to be treated with a hypodermic syringe instead of the scalpel.

Along this line, I had the pleasure of reading a paper just a week ago in the current issue of the *Lancet,* by Dr. Jeffcoate, writing from the clinic of Dr. Blair Bell in Liverpool, England, on the occurrence of female sex hormones in the urine in conditions unassociated with pregnancy. Dr. Jeffcoate was able to isolate demonstrable quantities of Prolan A, that is the follicle stimulating hormone from the anterior pituitary, following menopause, in many cases following castration, and in certain cases after thyroidectomy. The latter includes cases in which the majority of the gland had been removed, chiefly exophthalmic goiter, and in these cases there was a hormone in the urine producing the same reaction that is produced by Prolan A.

This seems to carry out the observation first made by Blair Bell in 1913 of the hypothyroidism so often associated with menopause as being due to the pituitary hypoplasia which is known to be present at the time of menopause, and possibly in part explains in many cases the hypertrophy of the thyroid noticed at puberty and also in the presence of pregnancy because we know in these two conditions there is a large quantity of Prolan A.

Passing from that, Dr. Jeffcoate reached the conclusion that this might also explain the efficacy of thyroid therapy in many cases who habitually have abortions and premature labors in which there is no demonstrable etiology that can be discovered, and we do know that many of these cases will carry to term under thyroid therapy. He felt that probably there was an excess of Prolan A at this time which explained the habitual abortion. And in the current issue of the *American Journal of Obstetrics and Gynecology* two investigators from Atlanta (I have forgotten their names) report a series of cases of menorrhagia that responded not to Theelin and the pituitry preparations but that responded to thyroid therapy. Unfortunately, these men did not have

assays of the urine to see how much Prolan A might be present, whether there was enough to overflow into the urine, but at the same time there was a general response of these bleeding cases to thyroid therapy, which is just in line with Jeffcoate's discovery that lack of sufficient thyroid results in an excess production by the pituitary gland and hence the change that we notice so often in the form of profuse menstruation.

Personally, I feel that in the choice between the two major preparations available, notably Theelin and Antuitrin-S, before these are used in any of these cases serological assays should be made either of that patient's urine or blood serum, to see if there are quantities of the follicle stimulating hormone present.

It is hard for me to see how Antuitrin, the preparation of the pituitary gland, can be indicated in cases that do have large quantities of the pituitary hormone already present in the urine. On the other hand, Theelin apparently is the preparation that is most efficacious in the presence of large quantities of Prolan A.

Chairman Moore: Gentlemen, will you continue the discussion of this paper?

Dr. George Johnson (Wilmington): Mr. President and Gentlemen: We are dealing with a substance of which we know very little. It is very well for clinics that have plenty of money and plenty of material to work on a scientific basis. We men in the country and in the small towns have limited amounts of money and we have to get along the best way we can. To test every patient's urine to see how much Prolan A or Prolan B of female sex hormones we have is an absolute impossibility. Not only do we not have the laboratory facilities, we do not have the money. Nor do we have the time.

What I would like for the rest of the men who follow me in the discussion to say is, from a practical standpoint, what gland substance we have on the market now is giving them results. What do they use these gland substances for, and what do they expect of them?

Our patients expect us to give them some relief this year and not next year. We have to use the preparations that we have on the market now. Let's use them until we find something better and then use what is better.

In my limited experience with Antuitrin-S—I have used it on two cases for menorrhagia—they have both responded very well. I believe than Antuitrin-S given one c. c. a day for five, six, or eight days for excessive bleeding is an excellent preparation. That is only based on two cases. I hope to use it more.

My experience with Theelin has been very unsatisfactory. I do not see where the patient is justified in taking the preparation. It is rather painful. She has to come to the office to get a hypodermic. It is rather expensive. Personally I have stopped using Theelin until I can see better results from it. I understand that Dr. Moore, of Charlotte, has had a great deal of experience with Theelin and before the discussion is over I would like to hear his reports. I understand he gets very good results from it. I get very sorry results.

Corpus luteum—I have been using that, especially when I am suspicious of a patient having a miscarriage. The preparation I have been

using is Parke Davis' Corpus luteum. I give the patient from two to three tablets a day throughout the first four months of pregnancy. I believe I have gotten some very good results. I have had patients carry babies who have been habitual aborters. Whether it is any good, I do not know, and I am calling these preparations by name so that we can know what we are dealing with.

There is one preparation I used before I used the Antuitrin-S, and so far as I know it is the only preparation I have used that is any good. I have been using Pituitrin for excessive bleeding in patients at any age and I consider that I have gotten good results from it.

Another preparation which I use a great deal is Burroughs-Welcome's female glands. I use this in cases where the woman runs a low blood pressure, has a rather scanty menstruation, and is rather pepless with no ambition. Those women very often will go to a dance or go down to a bridge party and faint.

I have gotten very good results with Burroughs-Welcome's preparation, using it for two or three months at a time. This preparation is not very expensive, and my patients can afford to buy it. That is what I have to consider in my practice—not to let the pharmaceutical houses get all of it, but leave a little bit for the doctor and not bankrupt the patient.

In discussing Dr. Hamblen's paper, I should like to have a little bit of confession from the rest of the men. Let's see what we are dealing with now and let's see if they are getting the same results from the preparations we have that I am.

It is very fine to be scientific, as long as you have laboratory facilities to back you up. Frankly, we have not got the laboratory facilities. We tried to get a few rabbits to run the Aschheim-Zondeck test when the patient is afraid of being pregnant. If they are not afraid of it we very seldom have it done, but from the standpoint of testing out how many female sex hormones my patients have, it is absolutely impossible.

Chairman Moore: It strikes me that this Section is pepping up. I congratulate Dr. Johnson on what he has had to say. That is exactly what we are here for. Will you continue the discussion? We have lots of time. We haven't but three other papers on the program this morning and we don't have to adjourn until twelve o'clock. If you are interested in this particular discussion we can prolong it to the extent that you desire, and I will take the responsibility for abridging the rules.

Is there further discussion?

Dr. R. A. Ross (Durham): It has been my pleasure to observe Dr. Hamblen's work, and it is only by such reports as he is able to make that a truly scientific and truthful evaluation can be arrived at. He is very fortunate in not being overly-enthusiastic about these things, and he will also tell you not to discard all the other armamentaria in behalf of this one thing.

The thing we are after in adolescent bleeding is to temporarily carry a patient over a certain phase. Some of these patients, it has been the experience of all you gentlemen I know, can be relieved by simple things such as curettage, and I am sure all of you can think of many instances where that has been provocative of much good.

Dr. C. G. F. Miller at the Southern Medical Association called this fact to mind when he was discussing Dr. Novak's very estimable paper on this subject, and he recommends curettage just as Dr. Hamblen does in association with a complete study of these patients.

Some of these patients perhaps are cured by that simple measure. We know that certain bleeding cases are cured by pregnancy where the endometrium is completely replaced with involution processes, and if we can carry the patient over six months or a year of this bleeding, healed endometrium is likely to be formed.

It has also been the experience, I know, of most of us in studying these patients to send certain patients—the more lucrative ones, Dr. Johnson—to the internist and have him decry our using the glandular substances and have him say there has been no demonstrable effect from these things, and then have this patient return to us with a prescription which the internist has written containing the very things we have given.

The importance of thyroid has been emphasized by all the men in discussing the paper. So it seems to me that we have to use the material we have at hand and be hopeful of carrying out to the benefit of our patients.

The thing which this Antuitrin-S does is substitute the Prolan B side of the thing from the anterior pituitary. We know that in the picture of a hypoplasia endometrium we have a proliferating stage of the endometrium. What we are anxious to do is to throw that endometrium into the secreting stage. And this seems to be the thing which this Antuitrin-S does. But in such instances we notice such immediate results that we think perhaps of some effect other than the one of replacement. It seems as specific in some instances, as for instance ergot is in some cases.

Another thing is this: we become too enthusiastic about these glandular substances and do not do a curettement to check our findings and we overlook certain cases of carcinoma of the cervix, and I think that is a distinct danger in these days of treating indiscriminately all bleeding cases with this type of thing. (Applause)

Chairman Moore: Dr. Johnson has drawn the Chair into this discussion.

I arise to a point of taking both sides in this, if there be two sides, if Dr. Hamblen represented one and Dr. Johnson another, and I am sure there was no line there and was no such intent, but there are those two sides that are presented. Whether we want to make an issue out of them or not it is true there are those two sides.

It is perfectly obvious that the gynecologist has recognized through the past generation that the thing Dr. Hamblen read about today was in the future, like the old chart they used to have on the wall when we were in college showing the system of elements. They would say, "Here is a blank place and here is a blank place and there is a blank place. We know there is an element for those places but we don't know their names. Those elements are going to be found and their names filled in." And years later they were filled in.

We know *these* things are going to be filled in sooner or later but the tremendous amount of work that has been done in the last three years predicated on one simple finding of three years ago has made it possible for us to reach our present status of knowledge which is far superior to anything we had before, and while it is far from complete naturally, we begin to touch a fringe that we had only vaguely guessed at years ago.

It is perfectly obvious that what Bradford said is true, that this sort of treatment is going to supersede the era of surgery of the female sex organs which predominated ten, twelve, fifteen years ago and even as late as six and seven years ago.

We can't help but be tremendously interested and hopeful in that phase, all of us who have seen the mutilating operations and have seen the useless surgery—and there has been such surgery—that has been done. We welcome any sort of information along this line.

It is also perfectly true that we can't do the things that Dr. Hamblen is doing but we can proceed on the things that Dr. Hamblen is doing. I am willing to say that the Duke Laboratory with its enormous facilities and with its capable personnel is able to present to us individually and in groups such work as we want to know about in a fashion that will make it possible for us to use it. So that while Drs. Johnson, Spicer and the rest of us can't have a laboratory of our own to do that work in, we can get it over there just about as rapidly as it is being done.

And not only is it being done there but it is being done in other laboratories of a like nature over the country and most of us have contacts with these places, where we can find out what is happening.

Getting back to the details that Dr. Johnson inquired about, he mentioned certain preparations. I must admit that I have never found any biological product given by mouth except thyroid of the slightest efficacy. I have never gotten any results from any of these things given by mouth except thyroid. And a good many years ago I was convinced that there must be a process of digestion in the stomach of all these biological products, just as though you had eaten a piece of steak, or ham, and didn't get any other results. It just went on through.

Certainly, my own best experience has been with those products given by hypodermic. Getting down to the particular and special ones that are useful, I have had no experience with Antutrin-S because I didn't have it available until about two weeks ago. It just came on the market about two weeks ago. Two weeks hasn't given me an opportunity to arrive at any conclusion about it at all. I have just started it. I don't know what is going to happen.

Theelin to me is a great boon. I am perfectly certain in my own mind that I have gotten good results from Theelin. The cost of it is undoubtedly a feature in the treatment of private practice. The accessory treatments, the other things that must be done to the patient will help eliminate that feature, of course, by cutting down on the amount of Theelin you have to give.

The stopping of women who are habitual aborters by the use of any particular thing has seemed to me to be predicated on insufficient in-

formation. We know that there are a lot of features that come into the personal equation of a given case which makes her go ahead and bear a child after she has aborted a number of times, and without any sort of treatment. She assumed some sort of habit of living or she begins to take in a certain quantity of vitamin which is necessary or her food supply has changed or her environment has changed, or she gets more sunlight. There are a hundred things that make it possible for her to go through with a pregnancy without being treated at all.

On the other hand, all of us have pulled women through, we are sure, who were chronic aborters by giving Corpus luteum. We were giving it and we were giving the proper thing but we were giving a lot of stuff we didn't need to give when we did it. When we got down to the exact hormone, we threw overboard a lot of useless material. In other words we were shooting these women with a lot of stuff that was not essential to the inhibition, and we were on the right track and couldn't have done without it. We couldn't possibly have done without Corpus luteum when that was all we had. But we have gone past the stage of Corpus luteum and are in the right place now.

The thing I am concerned about—and it gets back to that question I asked originally—is this: I don't see why we can't reasonably expect that under the proper sort of endocrine therapy we can change the endometrial aspect in disease, and in health for that matter. If our therapy is correct then we are going to do that right along with patients.

Ross' observation that you have got to curette is just as sensible as anything can be. You have got to curette for your own protection. You have got to curette to remove the immediate cause. A lot of these women have bled down so that you haven't time to wait for this endocrine reaction to occur and you have to get rid of the immediate cause of bleeding.

An experience recently seems to me to bear out that fact. I have had one chronic bleeder of that type, a woman who started bleeding at nineteen or twenty. She is now twenty-eight. She had had repeated curettages and she had had a lot of endocrines of one kind or another in the days in which we were feeling around for the proper one. That young woman was curetted by me six months ago and began to feel so hopeless about it that I thought perhaps we had better advise some sort of radical surgery. She was an active business woman and had become so incapacitated that it interfered with her earning a livelihood so we began to wonder if we hadn't better do something radical, either deep X-ray therapy or surgery.

About that time she developed an emotional love affair and is now going to be married. She hasn't bled since, except regularly every month. (Laughter) I think without question this affair which she has contracted has balanced up her endocrines to the point where she is getting well and I am out of a patient from now on unless she has a baby.

The Chair apologizes for taking up more of your time and we will now ask Dr. Hamblen to close the discussion on his excellent paper.

Dr. Hamblen (closing discussion): In giving this paper in the form in which I did I attempted not to take the rôle of someone predicting the future so much as I did to attempt to give us what most of us con-

sider to be the chief clinical factors in these hormones up to the present time. I attempted to answer that question.

Answering Dr. Moore's question as to whether or not we might be able to influence the hypoplasia of idiopathic bleeding by using the preparation known as Antutrin-S, it would certainly seem reasonable to expect that we could, because it is by using the lutunizing stimulating principles of this preparation we hope to stimulate an adequate production of the Corpus luteum Progestin, and by such action of Progestin to complete the biphasic endometrial proliferation which in this condition is due to a uniphasic stimulation of Theelin, unopposed stimulation of Theelin, lacking the action of Progestin, which throws it into a stage of pseudo-pregnancy and finally into the secretory phase.

So far I don't believe that anyone has proved a change in this endometrium by study of tissue, nor vaccine. Hurd as well as Collip and Campbell (I prefer the work of Collip and Campbell as far as follow-up is concerned) followed up their patients and gave menstrual charts on each patient for four or five months and they found that in the real severe menorrhagias, in spite of the continued treatment with Antutrin-S, the patients did not have regular menstruation. While they didn't have excessive menstruation, lots of them dropped off into long periods of amenorrhea with and with irregular menstruation.

Of course the time has been too short, our experience has been too little and our results have been too incompletely evaluated to know what the final estimate will be of what these patients may expect in the line of continued normal menstruation, or whether there will be recurrences of the old pathology.

To answer Dr. Bradford's discussion, I am particularly impressed with the efficacy of thyroid extract and I also must subscribe to Dr. Moore's statement that he has been impressed with the fact that none of these endocrine preparations, except the thyroid principle, has been active by mouth. I think thyroid extract is the only one that we are using to any degree which is active by mouth.

I am in accord with the statement that Dr. Willard Cooke, of Galveston, made in the *Southern Medical Journal* several years ago in an article on genetic bleeding, in which he stated that he had corrected far more menstrual disorders with thyroid extract than with any other endocrine preparation. And the work that Dr. Bradford cited as to the relationship of the thyroid gland to the other endocrine organs is important, for in this great advance that has been made in investigation there is one field particularly which has not been materially clarified and that is the relationship between thyroid, pituitary, and the ovary. We don't know much yet about the interrelationship. We do know that the thyroid is an important factor.

As to the discussion of Dr. Johnson, we have all had experiences with these various preparations and the reason I did not give a detailed report on the preparations which I used and the cases that I have treated was that we oftentimes find ourselves, or I find myself, after I have tabulated all my cases, lost in a maze of conflicting results, and that patients have not been followed long enough to properly interpret the final results. And, using different preparations it is hard to evaluate

them and, furthermore, it is hard to exclude these extraneous factors that I have mentioned.

In the past two years I have been using Theelin, Antutrin-S, and during the past nine months I have been using a new preparation, Theelol, in treatments. I have treated some two hundred and fifty menstrual disorders in that period of time and followed them as best I could, and to summarize my own personal opinion as to these different preparations I think menopause, as I said, should be excluded completely in attempting to evaluate any ovarian preparation. It was some time before I realized this.

I noticed that where Theelin (and that is the medicine that you usually use in menopause) was given by the nurse and I didn't happen to be in the office when the patient came in, the patient didn't get along so well. If I happened to give the hypodermic and talked to the patient a little bit the patient felt better. Then, if I gave saline to the patient I got just as good results. That has been observed also by Pratt, and by Dodge and Robertson in London: that there is a psychic factor there. And since Theelin costs the patient a dollar and a half approximately a day, if you give her two cc.'s, when saline will do possibly just as well, it is rather expensive medication for menopause.

With oligomenorrhea and hypomenorrhea (scanty and infrequent menstruation) we have regulated the cycle nicely with Theelin and in a couple of instances with Antutrin-S, and we have been quite pleased with the establishment of fairly normal cycles and the relief of certain symptoms associated with these abnormal cycles, particularly the relief of occipital cervical headache which Werner in St. Louis emphasizes to be so oftentimes an ovarian headache.

Dysmenorrhea where it is idiopathic, not organic, and when it is associated with scanty or infrequent menstruation, responds quite readily to regulation of the cycle.

Headaches we have mentioned.

With hyper and polymenorrhea, by the use of both preparations in an attempt to duplicate the cycle, we have gotten quite satisfactory results.

Our results in the treatment of metrorhagia and menorrhagia using the Antutrin-S, where the bleeding was idiopathic, have been quite satisfactory and except that it has not been permanent the patients' periods following treatment are apt to be irregular and there is apt to be a recurrence of bleeding if the treatment is not persisted in.

I have been particularly impressed with the work of George Van S. Smith, of Boston, in the treatment of threatened abortions, using the lutunizing hormone or Antutrin-S. He has done some very satisfactory work from a theoretical standpoint and has reported some seven patients with threatened abortions, bleeding, cervix not dilated, that he treated with Antutrin-S, and in all instances I believe stopped the bleeding. However, about half of his patients went on and aborted subsequently. He argues that certain cases of habitual abortion are probably due to incomplete formation of the Corpus luteum, therefore giving incomplete protection of the uterus to the stimulus, saline and oxytoxin, and he has treated them accordingly.

We have treated also, paralleling his series, some eight patients and in every instance where the membrane weren't ruptured—and these cases didn't have that—while the cervix wasn't anteriorly dilated, have stopped the bleeding and have stopped the progress of abortion. I believe that here we probably will have a therapeutic agent of value, but fifteen cases is too small to report upon.

The use of these hormones in vomiting of pregnancy I feel certainly is without material value, in spite of the fact that some fifteen patients whose vomiting of pregnancy failed to respond to other treatments responded to these preparations in our hands. But I cannot feel that the injection of 100 mice units of these preparations will stop vomiting of pregnancy when the system is entirely saturated, so to speak, with large quantities. When thousands of mouse units have been secreted in the feces, why should the injection of 100 rat units once a day have any material effect on the concentration of the hormones in the patient?

There is one other factor that I would like to mention at this time and that is the fact that so far we know very little about what these hormones do in the human. If you will check back on the literature you will find that no one has shown where the blood level is raised one bit by injection of these hormones in treatment, where the urinary excretion is changed one particle, nor where the endometrium has definitely been affected. Hypoplasia has been recorded following the injection of these hormones but it has not been proven.

We have recently reported a bit of work which is immature but which attempts to find out what Antutrin-S does to the human ovary. If it does the same thing to the human ovary that it does to the ovary of the rodent it is a dangerous preparation to use. We have given it pre-operatively in patients with clean pelvices, patients who came in primarily for plastic operations and suspensions, with normal ovaries as far as we could make out by clinical examination, and we studied those ovaries at the time of examination and obtained a piece for microscopic study. We have done that in about eight patients and have studied partially these serial sections, and we were impressed with two factors:

First, that a large number of these patients showed marked follicular stimulation with a result that oftentimes in one field we would find five to six mature Graafian follicles just ready to rupture; we found no immature follicles but found only the primordial follicles. In other words, there had been a skip from the primordial, they had been picked up from that stage and carried on to the mature stage, with the result that there was no intermediate stage showing definite follicular stimulation.

We were using a preparation called lutunizing hormone and were struck with the fact that we noticed very little lutunization. There was more follicular stimulation than lutunizing stimulation.

In checking back on ourselves we found that we were using a preparation which degenerated slightly and had lost by assay most of the lutunizing factors but the follicle stimulating factors had persisted.

So we feel sure, first, that this preparation does cause follicle stimulation in the human ovary, that it does cause lutunization, and we feel

as though the type of follicle stimulation and the type of lutunization stimulation we have seen so far is nothing to cause any permanent damage to the human ovary.

There is one other preparation I should like to mention in particular reference to Dr. Johnson's discussion and that is the preparation Theelol. Theelol is a recent preparation which is active by mouth. It doesn't fit into our other ideas about preparations not being active by mouth except thyroid extract. It is active by mouth. We have used that in about fifteen patients. It has potentially the same action as Theelin except that it is much less active in the mature, primarily, supposedly and theoretically effective in immature adults and in adolescent girls.

Now, as to the question whether there might not be other preparations which are active by mouth which have given us some of these results that we have obtained from these older preparations of whole ovary, ovarian residue, or Corpus luteum, there is no doubt that Theelin does not represent the only ovarian hormone, and it is only active by hypo. Theelol and possibly another hormone yet may occur in these preparations of ovarian tissue which we have given by mouth and account for some of the symptoms we have obtained. We have cured menstrual headaches with ovarian residue in the past and we have stopped habitual aborters with Corpus luteum, and we have relieved menopause with whole ovary, and it is conceivable that this may reconcile some of our observations in the past.

Chairman Moore: The next paper is one by Dr. Robert A. Ross, of Durham, "The Mechanism and Management of the Posterior Occiput Presentation."

Dr. Ross!

Dr. Ross: Mr. Chairman and Gentlemen: The speaker and the subject were assigned, and I make apologies for both. Dr. Watkins asked me to present a paper on Posterior Occiput before this Section.

THE MECHANISM, DIAGNOSIS, AND MANAGEMENT OF OCCIPITO-POSTERIOR POSITIONS OF THE VERTEX

Robert A. Ross, M.D., F.A.C.S., Durham, N. C.
(From Dept. of Obstetrics and Gynecology, Duke University)

The fact that Occipito-Posterior presentation constitutes one of the major problems in obstetrics is justification enough for a paper on this subject.

Just how often this does occur is a variable figure. The reasons for this variation are due to several factors. First, the time of labor at which the patient is examined. Rucker and Potter, for instance, often terminate labor at the beginning of the second stage, consequently they would encounter more transverse and posterior positions than the ordinary practitioner. Often the obstetrician sees these patients later in labor when the diagnosis is evident. Second, a proper examination and evaluation is necessary for a correct diagnosis. Various figures are given as to the frequency of this condition. Carter, whose paper is freely quoted by the writer, has scrupulously examined the records of a

thousand and six deliveries and found seventy occiput posterior and forty-two occiput-transverse, a percentage of 11.2 with no conclusive figures as to the parity. He quotes statistics from eleven other clinics with figures which vary from 4.4 to 30 per cent. The variation is easily explained by the above.

The exact cause for this presentation cannot be given definitely. As in most obstetric problems, the causes are maternal and fetal. In the mother her position at rest and at work, the muscular tone, anatomy of the soft parts and pelvis influence this. The importance of correct diagnosis of the type of pelvis is most important. Improper rotation being notorious in the flat and funnel type of pelvis. So far as the fetus is concerned, flexion is the most important factor, though abnormalities of the cord and placenta are sometimes causative. Other factors which influence this complication are uterine inertia, and premature rupture of the membranes. It is problematic whether a pronounced contraction ring is cause or effect, but its frequent association is note-worthy and should be constantly borne in mind. There is still some doubt in the mind of many as to whether the fetal head engages in the transverse or oblique diameter of the pelvis. In any event the long diameter of the fetal skull must at some time pass through the transverse of the inlet in its descent, here is where flexion comes into prominence. The presenting part must reach the pelvic floor before rotation can take place and flexion, descent, and rotation are dependent on each other. One of the most frequent complicating factors which we have found is a hand or arm underneath the fetal chin which prevents flexion and encourages extension.

The diagnosis is sometimes rather difficult. A study of the mother and fetus may cause us to anticipate this condition. Whenever you find the fetus lying on the right we should be suspicious of a posterior-occiput. Other palpatory findings are the anterior shoulder away from the mid line, and the forehead felt as a rounded mass above the pubic ramus. The position of the fetal heart sounds are confirmatory only. Rectal examination may not offer much aid but we can at least make frequent check as to the progress of the head, not being confused by the formation of a caput. In most instances we must rely on palpation of the infant's ear by vaginal examination. We have often noticed that these patients complain of a terrific pain over the sacrum and have suspected this condition from this fact alone. The type and length of labor sometimes make you suspicious of an arrested rotation. The X-ray is of great aid if the roentgenologist is familiar with obstetric diagnosis.

In the management of these cases one naturally wonders what the outcome would be if nothing were done to relieve the patient. It is claimed that about ninety per cent will rotate anteriorly if left alone. Most of us will line up with the conservative viewpoint. So long as the mother is not exhausted and the fetus shows no embarrassment there is no reason for haste. The length of labor should not be judged in terms of hours but rather maternal and fetal morbidity. There are several possibilities of the termination of this complication. First, spontaneous rotation through one hundred and thirty-five degrees to the anterior position. Second, it may rotate to a transverse position and deliver under one of the pubic rami. This is rare. Third, the vertex may be

arrested in the deep transverse position. Fourth, occiput may rotate to the hollow of the sacrum. In this event however there is still a possibility of spontaneous delivery by either extreme flexion or deflexion.

A satisfactory termination of labor is the object which we all strive for; and if the patient delivers spontaneously we are relieved of further worries. However, in certain instances it becomes necessary to employ operative interference. The treatment should begin during the first stage of labor and should be directed toward preserving the patient's strength and morale. This is best accomplished by mental and physical rest, brought about by the use of the various sedatives and narcotics at hand. The patient should be encouraged to eat. Under no circumstances should she be made to use voluntary muscular efforts. The membranes should be kept intact if possible. Some find abdominal manipulation and correction of value, personally it has given poor results in my hands. We should watch very closely for the formation of a contraction ring, and usually terminate labor before it develops. If the ring has developed it can sometimes be relieved by deep narcosis, and occasionally as was pointed out by Rucker, the use of adrenalin hypodermically is helpful. If the mother or the fetus begins to show untoward symptoms we may have to give relief. We know that an exhausted patient is more apt to bleed, and that edematous soft parts are more apt to tear, and that a patient who is exhausted, lacerated, and anemic is more prone to infection. These we seek to prevent and judicious interference may be considered conservative.

Danforth has developed a procedure which embraces many good qualities. It most closely resembles the method suggested by Tarnier. The head is allowed to engage and necessary molding to take place. The entire hand is inserted into the vagina and the child's head grasped by the fingers and thumb. The head is rotated into the anterior position. This maneuver is aided by the left hand on the abdominal wall. With the fingers holding the child's head in the corrected position, the left blade of the forceps is applied. The blade will now maintain the position and the other blade can be put in place. The operator next assures himself that the occiput remains anterior and extraction may now be done. Sometimes it is necessary to push the head upward in order to accomplish rotation but he has found no complications where molding has taken place. Bill, after a wide experience and many years of close observation, has reduced the procedure used to two; version and extraction whenever the largest diameter of the fetal head has not passed through pelvic inlet, and rotation of the head by forceps, according to what has been termed the modified Scanzoni maneuvers. This differs from the old maneuver in that rotation is accomplished by the forceps without any effort at traction. This is worth while as it eliminates the spiral movement and the frequently associated lacerations. He reports splendid results. Vaux and Piper elect podalic version in a great many cases and believe that the safety of the infant and mother are best assured by this method. Many operators favor the Kielland or Barton forceps. The use of forceps in this contingency is predicated on some skill on the part of the obstetrician, and an exact knowledge of the station and position of the fetal head, and a proper respect for the soft part. One should remember

that if certain rules are not observed, the condition of improper flexion may be exaggerated instead of corrected. In handling these cases we try to appreciate their occurrence, insist on careful pelvimetry, observe carefully, maintain patient in good condition by rest and food, avoid useless early straining, version is favored in unengaged vertex, and in engaged vertex, manual rotation and correction with the judicious use of forceps, paying particular attention to the bladder and rectum. Cesarean section is elected only in absolute pelvic contractions or acute bleeding complications.

Dr. Ross: To further this I have brought a phantom pelvis here and I think I might illustrate some points with this which can't be shown so much by the other thing. Pardon me for presenting this elementary side particularly after this Section has been favored by so many good papers by Dr. Proctor and the Chairman and many others.

Williams believes that the head always engages in one of the oblique diameters. Some of the men feel that the head engages in the transverse diameter but regardless of which we know that at some time this fetal skull must pass through the transverse diameter of the pelvis.

In studying the phantom we also see the benefit of such types of forceps as Kielland forceps where the posterior part of the child's skull or the back part of the child's skull, which is an occiput usually in transverse here, has to travel which is a much longer distance than the anterior part of the child's skull must travel.

If we will put the skull in the transverse position like this we can see that the anterior part of the child's skull is much nearer to birth than the posterior and a type of forceps which does not take that into consideration is a needless and hopeless manoeuver.

I think most of us will agree that this is a type of thing that we find most often and Dr. Spicer has probably had more experience than any of the rest of us in it, where the child's head is in the transverse diameter. If we leave it like that what are the possibilities? How can this child be born spontaneously?

As was said, in ninety per cent of the cases we will find that the child's head will rotate anteriorly and be born by flexion. In certain other instances where we have a small fetal skull and where we have a justo major pelvis it is entirely possible that this child's head can be born in a transverse position. Usually the occiput will change in oblique diameter slightly and come out under one of the public rami.

The other possibility is if the child's head rotates into the hollow of the sacrum in this sort of way. It still can be born if the woman is allowed to go into labor but here we run into tremendous possibility of the formation of contraction ring, which we all try very seriously to get out of. By further flexion the child's brow is brought to stand against the symphysis and by further flexion it is entirely possible for this child's head to be born by complete flexion, such as this.

Here is where we get a laceration of the perineum. In the hollow of the sacrum the child's forehead comes to bear against the symphysis by complete flexion; the child's occiput is born posteriorily, or the head may become deflexed and born. The child's head becomes extended, the

base of the nose hitting against the sacrum, and then by flexion against the occiput is born, and by further extension the sinciput is born.

As I say, the thing which causes these things most often, as is proven, is improper flexion. We know that the first part which hits the pelvis is going to be rotated anteriorly. In the funnel type of pelvis particularly the shelving of the vaginal floor is held up and we find improper rotation particularly notorious in that type of thing. But if we get extension rather than flexion, such as we have here, as I say very often we have noticed that a child's arm, forearm will be underneath its chin and it cannot come down, and we find extension taking place with labor pain, the extension exaggerated, and we find this sort of thing (demonstrating.)

This is elementary of course but where the brow hits the perineal floor, that is going to be rotated anteriorly. Where we get good flexion we know that the occiput is going to come down here and it will be rotated anteriorly.

A fact which we very often notice in these posterior occiputs is, by close palpation, just above the symphysis, we find that in early labor, when labor is progressing, we can't feel the brow of the child, and then we will notice as the thing progresses that we will find the occiput rising up at first until engagement takes place, and then disappearing, and by frequent palpating we can determine the presence of the occiput and whether it rises and falls with labor.

Personally, to supplement the thing, I am subscribing more and more to the teaching of Piper and that is that I think in the position of transverse arrest, where the occiput has rotated in its posterior position, I find that I am relying more and more on versions to get me out of the difficulty.

So far as soft parts are concerned, maternal and infant morbidity, I believe, are furthered by that rather than in the deep forceps, particularly since during the past year on one occasion I know that I had a rupture of the lower uterine segment from the use of Kielland forceps, and I want to go on record on that case. Fortunately, I got away with it, did a version and delivered the baby but I am sure I had a tear in the lower uterine section in the contraction ring.

The judicious use of forceps is predicated on knowing exactly where that head is so far as the station is concerned, and also its position. If we are not sure of that I think we are much safer in giving the patient the type of narcosis we used to give her, and keeping the patient fed, keeping the fluid balance up, and then going ahead, because in ninety per cent of these instances spontaneous rotations will occur or one or the other possibilities of rotation will take place.

Chairman Moore: Gentlemen, this very excellent paper is before you for discussion. The Chair is again assuming his prerogatives and takes this opportunity of saying there are two or three points that he is very much interested in.

I am awfully glad to hear you say you had to find the ear. I have always felt it was a sort of admission of weakness to say that we have to find the ear. I am glad to find myself in a group of men who freely admit that.

The other thing is that I am very much afraid that we will never get away from that bearing down early until all the present generation of nurses are dead. (Laughter) When you are not there, they always have them bear down and if you slip into the room they will say, "Now, bear down so. Keep your chin down and pull," and all that sort of stuff.

Gentlemen, the Kielland forceps that Dr. Ross refers to here, I have liked. DeLes states, in his last edition, "I have never been able to join in the chorus sung in praise of that forceps."

Dr. Bradford is quite skilful in that application, and if he will open the discussion I will appreciate it.

Dr. Bradford!

Dr. W. S. Bradford (Charlotte): Mr. Chairman, I didn't intend to get up again.

Chairman Moore: This is a family gathering.

Dr. Bradford: But, I guess I have to defend my feeling about the Kielland forceps. I am not a forceps enthusiast by any means. In fact, I feel the chief thing in the conduct of labor in cases of occipito-posterior is the approach, and that if it is handled conservatively, if the woman is rested, given generous use of morphine, and other preventatives as one may choose, given glucose if she does become tired, and so on, I think that even the ninety per cent can be increased.

There are certain cases of transverse arrest in which it has been my limited experience to find that the Kielland forceps is the best way out.

I think there are certain fundamental things to be remembered in the use of the Kielland forceps. I shall limit my remarks to the Kielland forceps.

First, it is a dangerous instrument. I have seen, not a rupture of the lower uterine segment, but I have seen one case of separation of the symphysis following the use of this instrument.

As I say, there are certain fundamentals to be remembered in the use of this instrument. The first is that deep relaxation is absolutely essential. Chloroform anesthesia is the only anesthetic I know to produce complete relaxation of the uterus with the possible exception of spinal anesthesia.

I prepare a case to be delivered by the Kielland forceps in the same way as one to be delivered by the version.

In the case of contraction ring I think the Kielland forceps is almost contra-indicated.

The second thing is an accurate knowledge of the position, and the only method by which I can find the position is by finding the posterior ear, like Dr. Moore says.

The instrument has certain things that are decidedly to its advantage; that is, they do represent as near as artificial delivery can represent the normal mechanism of labor.

The chief danger with forceps is pathological force, pathological trauma, pathological application.

The old mastoid brow application is not necessary with Kielland forceps.

It is practically impossible to get these instruments on without a perfect biparietal application, and with that the normal mechanism of labor is stimulated in a way that the ordinary oblique applications cannot do. Hence I think the percentage of cases of intracranial birth injury and possibly other injuries to the fetus that we do not recognize at the time of birth are greatly diminished by the use of this instrument, in preference to other types of forceps, for delivery, because the anterior blade can be brought to lie directly over one parietal bone and the posterior blade directly over the other.

The second thing about this instrument that makes it extremely efficacious in this presentation is the fact that it does have a sliding lock where we have the posterior parietal bone having to traverse a long distance and the anterior parietal bone a small distance, where often the head is deflected on the shoulder. By means of the sliding lock this deflexion is corrected before definite descent of the head is obtained. In that way, I do feel that in the majority of cases it is the best way out. However, I do not believe it should be used in cases of high arrest.

I agree with Dr. Ross that the version extraction is undoubtedly the best method out but in transverse arrest in lower mid-pelvis, and especially in those cases which are markedly long, I have found I have had more difficulty with the after-coming head than I have with the fore-coming head, with the Kielland forceps.

Chairman Moore: Is there further discussion of this paper? I single out these gentlemen because I happen to be familiar with their attitudes with regard to these things. That is in no sense done to smother general discussion.

Dr. J. L. Ranson, of Charlotte, my associate, is very much in favor of versional extraction in this type of case. He does it with considerable skill. I was wondering if he would say something about this.

Dr. J. L. Ranson (Charlotte): I am not a man to discuss papers very often.

As Dr. Moore says I have had more success in the handling of these cases by version than by any other method. I am not very adept in using the forceps, but I have felt for some time that in handling these cases the version is my easiest way out and I have practiced that method.

Chairman Moore: As Dr. Ross pointed out, Dr. Spicer sees more of these cases than any of us do. Will you talk to us about your ideas?

Dr. R. W. Spicer (Winston-Salem): Personally, in this type of case, I feel as Dr. Ranson does: that we can always get better results with versions. I think it depends a whole lot on whether you like versions or not. If you feel that you are going to have more trouble with after-coming head than you have with the forceps, I think your bad results will be just as bad, if you try a version, as they will be with the forceps.

However, in these cases as we say we have a lot of trouble with the contraction ring and as Dr. Ross mentioned and as Dr. Rucker says that ring should be relaxed with adrenalin. If that is to be used, then it is very necessary to use a version, anyway, because adrenalin has its effect only for a short period of time, and this baby will have to be delivered

while that adrenalin is acting, in other words, within, say, a limit of five to seven minutes. It has more relaxation about that time.

There are people on whom the doctors are doing a great many versions, and they find this condition far more common than when we can force the head to descend. If a case is coming down in occipital position, if you wait that long to do a version, that is the ideal position in which to push the baby back into the uterine cavity, to do the version. In other words, if the baby has gotten down into a transverse position you can get this baby back and do the version much easier by turning the occiput way back, and making your pressure upward toward the umbilicus, and getting the baby turned around in that way.

A thing we have to think about before doing a version, I should say, would be the type of pelvis we are dealing with. Naturally, this phantom pelvis is a bit overexaggerated and we do not have the impression there that we usually find in these cases because we have so many with the frontal type pelvis, on which type it is very difficult to do the version. But personally I would select a version rather than the other type of delivery.

Chairman Moore: Thank you, Doctor.

Dr. Brewer of Roseboro is in the audience. I saw him come in the room this morning. Doctor, did you hear the paper and would you care to contribute to the discussion?

Dr. J. S. Brewer (Roseboro): The first impression I have regarding occiput posterior is that if you will let them alone most of them will rotate themselves. I realize that sometimes if you let them alone you are going to get the head way down in the pelvis and transverse arrest, and you will be up against it as the Doctor mentioned just a minute ago.

My practice in handling these cases is to leave the patient alone and do all I can in the first stage of labor because I find then that most of them are going to rotate. If there is any question about it being in transverse arrest and delivering with forceps, then my plan is to push the baby up, turn him around, and get him out in that way, providing as Dr. Spicer just mentioned that I know about the pelvis, because I suppose most of us have had those cases, when we get the baby turned around and we then try to get it down. That is quite a difficult procedure.

Chairman Moore: The Chair realizes that we are running this Section in somewhat unorthodox fashion. But I presume we are here to get the most out of these papers that we can and that is why I am encouraging things.

We have the old original on occiput posteriors here, Ivan Procter. He has been writing on them ever since I can remember and he was the earliest episiotomist in this part of the world. I should like to hear from Dr. Procter although he swore he wouldn't talk here today.

Dr. Ivan Procter (Raleigh): This subject of Dr. Ross' is very interesting to me. I think it is a thing that I have to lay down simple rules for, because it is a complicated subject.

To my mind, occiput posterior is the most difficult obstetric problem that the general man runs into. Surely if I am awakened at one o'clock in the morning by the telephone and a patient tells me that the first thing she had was ruptured membranes, I look out for an occiput posterior and I dread that the rest of the night and the next day and the next night. (Laughter) Mine have often run into that second night. I don't know about yours; mine do.

I have tried to simplify this thing by making certain rules for myself, although we can't lay down rules in obstetrics.

There are two things: one is diagnosis and the other one is treatment.

In the diagnosis, as Dr. Ross has pointed out, we make an examination of the pelvis, prenatal examination, as Dr. Carter said, prenatal pelvimetry. He said, Examine the pelvis in the prenatal period and know what you have to deal with at labor. When labor comes the diagnosis also includes as he has well pointed out the position and station of the fetal head. If we know the pelvis and know the position and station of the fetal head, then we have the diagnosis.

Surely most important, as has been brought out, is the conservation of the patient's strength and nerves during the first stage, and I do that by forcing food, not solid food but liquid food, every two hours throughout that period of twelve, twenty-four or thirty-six hours, whatever it runs, into the patient.

I also give sedatives because a patient needs her nervous system especially in the latter hours of such a labor.

As to the diagnosis, I too never depend upon anything except the palpation of the ear and I don't believe that anybody else who has an occiput posterior in which the usual caput succedaneum forms can be sure that they have the position without feeling the ear. It is very important, I believe.

There are three things that I say wait for: wait for dilatation; wait for engagement; and wait for rotation.

In waiting for dilatation, do everything to save the patient's membranes. Early rupture of the membranes delays the case and an artificial rupture of the membranes is worse than if nature does it.

Wait for engagement and learn the rules of engagement. It took me a long time to learn them. A head is not engaged until the most descendant portion of the skull, not the scalp but the skull, has reached the spine, until three-fourths of the sacrum is covered by the fetal head and until two-thirds of the symphysis is covered.

I think those rules are very important.

Wait for rotation, after the head is engaged. All of them have told you that.

Now, we have three "if's" afterwards.

If rotation doesn't occur Kielland forceps or modified Scanzoni;

If there is no disproportion between the size of the fetal head and the maternal pelvis, then podalic version;

If there is any disproportion there is nothing to do but a low cervical Cesarian section.

There are three waits: Wait for dilatation; wait for engagement; wait for rotation. There are three "if's': If no rotation, Scanzoni or

Kielland; if no disproportion, internal podalic version; if disproportion, low cervical Cesarian section. (Applause)

CHAIRMAN MOORE: There is always one question about this ear that comes up. Not long ago I was called out to see a case in which the doctor told me he had an occiput posterior. On examination it was a breech and he had been feeling the scrotum on a male. (Laughter)

Dr. Ross, will you end the discussion?

DR. ROSS (closing discussion): Mr. Chairman, there is very little I have to say in closing. I thank Dr. Bradford for his opening discussion. He last year presented a new type of forceps very creditably and he is well versed in the subject.

I too subscribe to the Kielland forceps, but I brought this fact about the injury out to show that there is danger there. I know personally of three vesicular fissures which occurred in Philadelphia from their use. Where I got my injury, the woman had been in labor only for a few hours but she was exhausted and she had dilatation and I didn't anticipate the contraction ring or I certainly would not have put the forceps in there, knowing that condition.

I am very grateful to Dr. Spicer for his remarks. I know that he has handled this situation quite admirably.

I am very grateful to the Chairman for calling on Dr. Procter because I have lifted bodily many paragraphs from his papers in this thing. We listened to Dr. Royster for many years and now Dr. Procter is the one who is quoted on this subject, and we subscribe to what he says.

The question of engagement I think should be emphasized. As he has said, the most descendant portion must be opposite the spine, which is here. Two-thirds of the sacrum must be overlaid and half of the symphysis. When you get this sort of thing you have engagement, and not before. When its largest diameter passes the pelvic entry then and then only do we have engagement, and that time is worth amplifying.

CHAIRMAN MOORE: The next paper, gentlemen, leaves obstetrics and goes into pure gynecology, "Etiology, Pathology and Treatment of Uterine Hemorrhage," by Dr. Robert Thrift Ferguson, of Charlotte.

Dr. Ferguson!

DR. ROBERT THRIFT FERGUSON: Mr. Chairman and Members of the Section: It is a long way between theoretical medicine and practical medicine. Every paper I have presented before any medical organization since I have been practicing has been limited absolutely to the practical side. Theorists are all right. We have to have them. They are good. The laboratories are fine and the technical work done there is wonderful and we need it and it would be a great thing for medicine if every group was able to maintain a laboratory. Most of us are too poor to attempt such things and depend on the laboratories that we find convenient.

ETIOLOGY-PATHOLOGY AND TREATMENT OF UTERINE HEMORRHAGE

By Robert Thrift Ferguson, M.D., Charlotte, N. C.

Hemorrhage is a symptom common to many gynecological affections, and one which always demands an immediate and thorough investigation until the cause has been ascertained and the patient afforded relief.

For convenience I shall discuss the causes as I list them and take up the pathology and treatment later. The etiology of menorrhagias and metrorrhagias is so closely related in many instances that it seems logical to consider them together at first and differentiate later. Menorrhagias as a rule are the least significant or important and the easiest to control while all metrorrhagias are pathologic and should in every instance be regarded seriously. In this discussion I shall have very little to say in regard to bleeding connected with obstetrical conditions or complications but discuss these only in conditions where they overlap, or where they appear to come under a gynecological classification. I should like to state in the beginning that the physiological interval in many women is less than the established 28 days and is absolutely normal in this individual. I have seen a number of young women who failed to menstruate at all and who were apparently in perfect health though these cases nearly always develop a neurasthenic tendency from the fact that they know it is normal to menstruate monthly. One case in question I distinctly recall who was 23 years of age and who had never menstruated, was in perfect health, and was only worried because she had not been able to conceive after a marital union of 6 years. She had been the rounds of gynecologists and obstetricians over the country and had taken every conceivable glandular extract, been dilated and curetted and followed all other suggestions by doctors and friends without the slightest result. All the pelvic organs in this patient were infantile in character and the hope of any relief was out of the question. I would not like it understood that because a patient has what is supposedly an infantile uterus and adnexa that she could never conceive for I have seen a number that have been so diagnosed that had become pregnant. I recall a case like this who had been referred to me a year ago for vaginitis and who had been treated for three months without relief. On examination I was happy to be able to tell the patient that she was three months pregnant. She exclaimed that this was impossible for her doctor had told her that she had an infantile uterus and could not become pregnant. It so happened that a friend of this patient was in my office yesterday and told me of the circumstances and how happy the lady was with her baby. The impossible frequently happens!

An occasional show of blood in the new born or in infancy is frequently seen without pathological significance. Precocious menstruation is sometimes seen and is supposedly due to some glandular disturbance such as the thymus or pineal glands, and later, disturbances of other glands such as the ovaries, thyroid, pituitary, etc. The most interesting and severe cases of menorrhagia running into metrorrhagia are those occurring at or near puberty and are sometimes almost intractable. Chlorosis and anemia are the fore-runners or followers of this condition

in most cases. Menorrhagia and metrorrhagia are frequently met with in syphilis and the treatment is specific. Excessive coitus is mentioned by all authors as a cause of menorrhagia. Whenever a patient complains of bleeding following coitus it usually means one of three things, named in the order of their importance: carcinoma of the cervix, polyps or cervical erosion. Acute infectious diseases are frequent causes and passive congestion from retropositions and prolapse common. Inflammatory conditions, either intra or extra-uterine, tumors, foreign bodies, systemic disorders, venereal diseases, hydatidiform mole or polyps, arteriosclerosis of the uterine vessels, chlorosis, the menopause, blood dyscrasias, focal infections, ruptured hymen, salpingitis, senile vaginitis, tuberculous or hyperplastic endometritis, cervical and intrauterine polyps, fibromyomas, especially the submucous type, adenomyoma, carcinoma, sarcoma and abortion are among the common causes of uterine hemorrhage. Bleeding from the decidua of extra-uterine pregnancy is an important form of metrorrhagia and should always be looked for and recognized. Clotting of blood at the periods I consider of little importance as bearing on the pathology of the condition as between 40 and 60% of all the patients I have seen state that they have clotting at their periods, and are normal in every other respect. You cannot always depend on what a patient tells you in regard to metrorrhagia, many of them will lie in order to induce you to undertake some form of operative procedure upon them for a condition which does not exist but instead to get rid of an undesired pregnancy. A woman once stopped me on the street and told me that she had been bleeding for several weeks and was coming to my private hospital to get me to do something to stop it. In a few days she appeared with bag and baggage prepared to have a curettement. I examined her and found no sign of blood but a slightly enlarged uterus which looked like early pregnancy. I allowed her to remain in the hospital over night to be sure she was not lying and when no evidence of blood presented I sent her on her way. Later I learned from a friend that she knew she was pregnant but thought she could put it over on me and have me operate. My rule is, and always has been, to see the blood myself and know that the patient has a metrorrhagia.

Having named most of the causes of menorrhagia and metrorrhagia I shall point out some of the most frequent conditions which seem to produce it in my practice. 51% of my cases have been due to a chronic hyperplastic endometritis; 4% due to polyps; 20% due to incomplete abortions; 5% to fibroids; 5% due to carcinoma either of the body or cervix uteri; 3% due to acute or chronic inflammatory conditions in the pelvis; 3% to ruptured extra-uterine pregnancy; 7% to chronic cervicitis and endocervicitis and 2% to syphilis.

Excessive loss of blood is usually due to incomplete abortions, cancer, large fibroids, polypi, myoma and hydatid moles. Large cervical polypi frequently cause excessive hemorrhage. One case of this character I saw in consultation a few years ago who had been examined by her family physician with report of a negative pelvis, was X-rayed for the bleeding and had one or two blood transfusions. When I examined her I found a polyp the size and length of my thumb protruding from the

cervix. An immediate curettement under morphine with removal of the polyp relieved the bleeding and the patient had an uneventful recovery.

Bimanual examination of the pelvis, and always an inspection of the cervix and vagina through speculum, will frequently make your diagnosis, otherwise you must do a curettement and send the scrapings to a pathologist in order to determine the cause. Masturbation is set down as a cause of menorrhagia in youths by some authors while varicosities of the veins of the broad ligaments may be a contributing cause. Hypertrophy and hyperplasia of the endometrium have in the past been looked upon as a primary cause of either a menorrhagia or metrorrhagia, and a number of my cases have been so classified, but I am firmly convinced that these are results rather than causes. There are many cases of idiopathic uterine hemorrhage.

Climacteric and preclimacteric menorrhagia is a frequent phenomenon and often with no assignable cause. Most cases of uterine bleeding for which no anatomic or pathologic cause can be discovered, can, in the light of present day investigations, be laid to the disturbance of the internal secretions either of the ovaries or the pituitary glands. All bleeding following the menopause is exceedingly important and demands immediate examination or curettement or both for diagnosis. I wish to impress upon every member of the medical profession the importance of this statement. The first sign of blood at this stage so frequently means cancer and the only time to act to save the life of the patient is now, today. Just a spot of blood the size of the end of your little finger in a postmenopausal patient is almost pathognomonic of malignancy. A few years ago a case of this kind impressed this on me very vividly. The patient was a spinster 60 years of age who had enjoyed perfect health all her life and had passed a normal menopause, noticed in June a tiny spot of this size, and being an educated lady realized from what she had read that it should not be, but like most all women decided since it was so little, and she saw nothing more, and felt perfectly well, that she would pass it up. The same thing occurred in July with the same reasoning and when in October of the same year the occurrence repeated itself I was called in. Pelvic examination revealed a perfectly normal cervix to the touch. I advised curettement telling her of the possibilities. Curettement was done the same day and several large chunks of tissue were removed easily with the curet and reported cancerous by the pathologist. The carcinoma being at the junction of the cervix with the body operative procedure offered very little. The patient accepted radium treatment by preference as she had been a former patient of Dr. Kelly's in Baltimore. Dr. Kelly concurred in the diagnosis and used radium. The patient lived about two years. The same discovery at the June spotting might have meant early diagnosis and hysterectomy and saving of the patient's life.

Bleeding is sometimes the result of pessaries left in over a period of several years and failure of the patient to return to the physician to remove them. A short time ago I removed a gold winged pessary that had been left in three years and which had buried itself in the lateral cervical walls for half an inch.

To sum up the pathology of all uterine hemorrhages I would insist

that it be left to the pathologist in every instance to make the final diagnosis. No matter how sure you may be from a macroscopical examination that the cause is a simple one, the pathologist may be able to demonstrate beginning malignancy, and this is the time to save the patient. I have found two cases of early carcinoma of the body of the uterus in the past 18 months, done a complete hysterectomy on both and they are well to date.

Also biopsies should be done in every case where it is possible to obtain a specimen of tissue and the wound immediately cauterized with actual cautery.

In the treatment of uterine hemorrhages I would like to stress first the absolute importance of a thorough physical examination, a bimanual examination of the pelvis and then inserting the bivalve or other specula and making a thorough inspection of the parts; and whatever you do, do not fail to make a rectal examination with your finger and if advisable use the proctoscope. This is not painful and frequently reveals the nature and location of the trouble where you least expect to find it.

Many cases of uterine hemorrhage are easily and readily relieved by the use of ergot or other oxcytocics, though most preparations made for this purpose are worthless. Some are relieved by rest in bed and elevation of the foot of the bed. Others are relieved by the use of ice to the pelvis or ice cold douches. The use of iced douches may not appeal to some as it is the old granny understanding that has been handed down from one generation to another that a woman should never have any cold water about her person and certainly not around the pelvis when she is flowing. This theory has long ago been exploded and I have had excellent results in some cases by using a douche composed of lukewarm or spigot water with a chunk of ice about the size of my fist added. The first part of the douche is not very cold and it gets colder as it progresses and causes the patient no discomfort. Most cases have tried the simpler remedies when they call on the physician for relief so it is up to him to do something more drastic. After examining the patient and satisfying myself that there are no tumors or polyps and no extruding membranes from the cervix, or evidence of carcinoma of the cervix, I advise curettement to obtain specimen for the pathologist in order to make a diagnosis. The curettement in a large percentage of cases is all that is necessary to effect a cure. Other cases require operative procedures, X-ray, radium, blood transfusions, injections of iron and arsenic etc. Some of the worst cases I have been called on to treat have been in girls fom 12 to 14 years of age. In one of these who had been bleeding for a year when I saw her, and was almost exsanguinated, I scraped from the uterus a double handful of thickened mucous membrane which pathologists in Charlotte and Baltimore reported as "chronic hyperplastic endometritis." This patient was curetted three times with the same report from the pathologist and with the same thickened mucosa. She had a blood transfusion and finally deep X-ray therapy before the bleeding could be stopped. The other cases in young girls I have been able to control by curetting and giving iron and arsenic intravenously. Iron is one of the oldest remedies used in blood dyscrasias in women and one of the most useful. Given in 5cc. doses intravenously once a week for 6 doses it will

show an increase in the red cell count, in practically every case, of from one hundred thousand to a million or more. Blood counts are kept on all these cases both before and after treatment no matter what the treatment happens to be, and I find this to be an excellent index to the patient's condition. Where there are simple tumors the method of choice is operation; where there are malignant the stage and location will decide the nature of the treatment. Where operation is contra-indicated then your choice will lie between X-ray and radium. I prefer X-ray first and radium as a last resort, or else an application of radium to be followed by X-ray.

CHAIRMAN MOORE: Gentlemen, the obstetricians have had their day. We want some discussion on this gynecological phase now. This paper is open for discussion and I will make my preliminary remarks by referring to that phase of Dr. Ferguson's paper which recalls to our mind infantilism.

Fifteen years ago a doctor told me he had just been married and he told me he thought his wife had an infantile uterus. Ten years after that she had had seven children. I met him on the street one day and I said, "Say, I thought you said your wife had an infantile uterus."

He said, "Yes, hell! It was full of them." (Laughter)

I see in the audience some men who are qualified to discuss this paper. Dr. Martin, of Mount Airy.

DR. MOIR S. MARTIN (Mt. Airy): Thank you, Doctor. I have nothing to say.

CHAIRMAN MOORE: Dr. Charles Allen, of Wadesboro.

DR. CHAS. I. ALLEN (Wadesboro): Mr. Chairman. The Doctor has brought out some important points.

I have had a great deal of trouble with these people bleeding at the time of menopause and if there is one place where radium is indicated I think it is in that condition, women who are having persistent bleeding during the age of forty-five to fifty, when they are going through the menopause. I have curetted those women and have worried with them from time to time, and after two or three weeks they call me up and tell me they are bleeding again. But if you will put in enough radium, and put in a large enough dose, give them anywhere from 2000 to 2500 milligram hours I think you will find it is one of the most remarkable things we have in gynecology for curing a condition like that. It works like magic. That has been my experience.

I realize the danger of using radium in a young woman because it is a very difficult matter to determine the dose and there is always a danger of bringing on a premature menopause. But in these cases where they are about forty-five or fifty years old that is the very thing that you want to do to finish up the menopause—give them a large dose of radium. It certainly has helped out a great deal in the patients I have had.

CHAIRMAN MOORE: Reiterating that the Chair has no desire to smother general discussion but is trying to further it, that is why I pick out men from time to time to discuss the various papers. I will now call on Dr. Webb Griffith, of Asheville.

Dr. F. Webb Griffith (Asheville): The Doctor hasn't left much to discuss. He stated when he started his paper that his papers were always on the practical side. I think I would go a little further than that.

I have heard a great many papers of Dr. Ferguson's in the last fifteen years. They are always mighty practical papers. I have never yet failed to get something good out of anything that Dr. Ferguson has said.

There is only one question I want to ask. What has been Dr. Ferguson's experience with the use of calcium in some of these cases? Every now and then I stumble across a case where everything has been tried. I had such a case last summer in the neighboring town of Hendersonville, where a person who had come from Charleston had been fairly worked up and in fact there was nothing else left for me to do so I gave her calcium glutinate and the condition cleared up, and I heard from her six months later.

I think that is one point to bear in mind, especially in the younger patients. It is not hard to get calcium determination. If you can't get it, it will do no harm to give it boldly, empirically.

Chairman Moore: Gentlemen, is there further discussion?

Dr. E. C. Hamblen (Durham): Mr. Chairman, in reference to the doctor's suggestion about the use of calcium in bleeding, we have had some experience with the use of calcium in idiopathic bleeding and in inflammatory bleeding. We have used calcium glucinate and have followed the method described by Alden Goldthorpe in the American Journal of Gynecology and Obstetrics about two years ago. We use about one dram of calcium glucinate four times a day. They use calcium lactate and use parathormone, a Collip extract, U-40, daily for five days to mobilize the calcium and to aid in its being utilized at the proper places.

We have had quite satisfactory temporary results with the use of calcium in bleeding, in selected cases.

In the use of calcium particularly with parathormone, there are several things to be watched for. They are the symptoms of hypercalcemia. They include a beginning increase in pulse rate, a rapid pulse, elevation in temperature, thirdly, nervousness of the patient, and, fourthly, vomiting and nausea. Those symptoms must be watched for in this treatment with parathormone and calcium and when they arise they should be discontinued.

We have also as we previously said had satisfactory results with temporary control of idiopathic bleeding with pituitary hormones.

I cannot too strongly advise, as the Doctor has, curettage in bleeding patients, followed by a careful pathological study, and that determines a large number of instances of treatment, a definite diagnosis, and a definite treatment for that condition. That is paramount to proper treatment, the treatment of the condition, as is recognized by biopsy and by pathological studies of the individual.

Chairman Moore: Is there any further discussion of the Doctor's paper?

Dr. Ivan Procter (Raleigh): Mr. Chairman, may I get up again?

I think this paper of Dr. Ferguson's covers a very important subject. I have had some little experience in the use of radium in bleeding cases, which Dr. Allen mentioned. He talked about the value of radium in women around menopause who are having trouble. I don't know whether he mentioned it or not but in those cases in which we use radium at menopause we always precede with a diagnostic curettage, because there is a possibility that there may be a beginning carcinoma of the fundus which has really not produced any symptoms, but the radium that I wish to refer to is radium in young women.

Dr. Hamblen has ably presented the subject of female sex hormones clinically, and surely bleeding in young women should be treated most conservatively with Antuitrin-S, with Theelin, or with any preparation with which we can control it by medication. If we cannot control it that way then those cases, some of them, go on and become grave and we have to be more radical. We resort to curettage. In many of these cases they return to us in six months, nine months, or a year and are bleeding again, and as you have seen and I have seen a number of these young girls have to be curetted two, three, four, and five times. After they have been curetted that much, as the Chairman mentioned in a case he discussed this morning, they get tired of it. They haven't the money to pay for it and they are exhausted frequently and we have to do something about it.

I have found the judicious use of radium in these cases very good. I now have fourteen or fifteen cases of young women that I have treated with radium, intra-uterine radium preceded by curettage, and in whom I have gotten good results.

We always err on the side of giving too small a dose because we can repeat the dose. We never exceed 600 milligram hours and we have, following the work of C. C. Norris in Philadelphia, gotten very good results.

The Doctor brought out the fact of bleeding as a result of erosion or cervicitis, infected cervix. We often see bleeding, irregular menstruation, menstruation preceded by two or three days of irregular brownish bleeding which our patients complain of. This erosion as you know is followed by a pelvic inflammatory disease which is carried through the lymphatics from the cervix and we have a parametritis, and there is no use of our giving sex hormone or doing a D. N. C. In these cases we have to clear up the pelvic inflammatory disease.

Surely, in bleeding after thirty-five years of age or forty we have always got to be on the watchout for carcinoma of the cervic or carcinoma of the fundus, a condition in which I am very much interested, and we must remember that if we have a carcinoma of the cervix that shows a perfectly normal mucosa covering the vaginal portion of the cervix, but just inside the external OS we may have a slugging, excavating malignant growth.

Those cases must be dilated and tissue removed and surely the mucosa of the body of the uterus must be removed for diagnosis.

I certainly think in the case in which we have erosion or break in the mucosa of the vaginal portion of the cervix if there is any doubt a biopsy is indicated. It should be done with the endothermic knife or followed by cauterization.

CHAIRMAN MOORE: Is there further discussion of Dr. Ferguson's paper? If not, we will ask the Doctor to close.

DR. FERGUSON (Closing Discussion): It is the things you have learned in the practice of medicine that does the other man good. I think at the average meeting if more men would tell the results they have gotten with various kinds of treatment in various kinds of diseases we would get much further in the practice of medicine.

In regard to X-ray and radium, what Dr. Allen said is absolutely correct. Any case who has been curetted at the menopause is a worthy case for X-ray or radium.

I am not much of a believer in X-ray and radium in young people. We don't know enough about either one of them. We certainly know little enough about the X-ray but we know less about radium. I would certainly hate to have radium used on myself, when a man can drink water supposedly with radium in it and die from the effects of radium poisoning. I would be very careful about having radium used on my own body. I take the same stand with my patients. I try to do for them what I would do for myself or one of my own family. There are cases at menopause where the bleeding occurs de novo where nothing else is left to do after curetting the patient but to use X-ray or radium, and we get excellent results in those cases. You can get results in almost any hemorrhage after you have made the diagnosis, by the use of X-ray or radium, but I am not in favor of using either one in young people if it can possibly be avoided. There are cases, and I have them myself, where you cannot stop without the use of one of these therapeutic agencies.

CHAIRMAN MOORE: Gentlemen, now we return to the Number 1 paper on the program. Dr. Griffith's paper will be presented before the General Session. We will hear from Dr. George Johnson on "Kraurosis Vulvae."

KRAUROSIS VULVAE

By DR. GEORGE JOHNSON, Wilmington

The object of presenting this paper is to call your attention to a condition of the vulva, which although is rather rare, nevertheless, occurs often enough to be watched for. It is a condition that is easily diagnosed and the diagnosis is very important, not only on account of the distress, which drives the patient to you, but also on account of its precancerous nature.

In the past this disease has been classified under various nomenclatures as "Ichthyosis" (Weir), "Leukoplakia Vulvitis" (Berkeley & Bonney), "Scleroma Anovulviare" (Verchere), "Progressive Cutaneous Atrophy of the Vulva" (Reed), "Serpiginous Vascular Degeneration of Nympha" (Tait), and many others. Kraurosis has survived all the other terms, although this is not the most scientific, as this describes only one process—the shrinking.

In 1875 Dr. Robert F. Weir of the Roosevelt Hospital, New York, reported a case somewhat similar to kraurosis, which seems to be the first record of it. In 1877 Lawson Tait described a condition of the

vulva which he called "Serpiginous Vascular Degeneration of the Nympha," and in 1885 Briesky described the lesion and gave to it its much discussed name.

The causative factor is unknown. The disease is not an autonomous affection, but rather a syndrome. It has an extremely insidious onset and runs a slow course, thus the cause is hard to elicit. Ovarian hypofunction seems to play an important part as there is frequently a history of defective menstruation, and the majority of cases occur in some relationship with the climacteric years. Also there is a post operative kraurosis, following ovariectomy. Syphilis and gonorrhea have been accused. Anything that causes pruritis may be an etiological factor, but whether it is a symptom or the cause is hard to say. Some cases of kraurosis have no pruritis.

Structural changes are not always the same. There is an atrophy of the vulva due mainly to cirrhosis of the subepithelial constituents of the skin. In the extreme cases, the labia majora flattens out, the labia minora completely disappears, mere indications of the clitoris and prepuce are found. The vaginal introitus is contracted down to an opening so small that it barely admits the finger, the margins of which are sharp and rigid. The surface of the vulva looks thin, glistening, tense, dry and whitish, giving it a strikingly dead, white, leathery or parchment appearance. The surface of the whitened skin is often cracked and often superficially ulcerated, and at times there is a tendency to papillary hyperplasia. There is usually a sharp demarcation between the kraurotic area and the normal skin. As a rule the kraurotic whitening extends to the outer limits of the labia majora and indefinitely towards and around the anus.

Leukoplakia is closely associated with kraurosis, some writers believing that the two appearances are simply different phases of an identical process, while others claim that they are independent of each other. Areas of leukoplakia can be found in the great majority of cases of kraurosis.

Histologically the cornified layer is more or less well developed. The rete malphigi and granulosa layers are atrophic and thin with a few rows of cells. The basal layer cuboidal or flat. The papilla low or effaced, so that the epithelium appears as a narrow straight band. The connective tissue is atrophic; round and plasma cells infiltration present to a variable degree. The elastic fibers are few or entirely wanting. Pigment, sweat, sebaceous glands and hair follicles are either atrophic or diminished in number.

The symptoms of kraurosis are burning and an intolerable itching of the vulva with a constant sense of local tension. There are times when the symptoms are abated, but this is only temporary. Patients with this disease suffer pitifully and are sometimes driven to acts of desperation. They are compelled to avoid society and often conceal their plight from a sense of shame.

Treatment—In the prekraurotic stage of vulvitis the primary treatment consists in finding the cause of the irritation. Cervical erosion with its attending leucorrhea should be cleared up. Parasitic infection, condylomas, chemical irritants and sexual abuse should be eliminated.

If there is an obstruction to genital drainage this should be relieved. Palliative measures for the pruritis should be non-irritating. Drastic salves and cocain should not be used. Irradiation in any form is both theoretically and practically the most illogic of all treatments and usually results in making the condition worse. It creates in the tissue a sclerotic reaction not unlike that of kraurosis.

When permanent skin changes are present temporizing with palliative measures is futile. The condition is imperatively surgical, and removal will cure the pruritis and act as a prophylaxis against cancer. When you make the diagnosis, the patient should be advised that an operation may have to be resorted to. Patients do not relish the operation and only have it as a last resort. Operation consists in excising all the kraurotic area by a complete or partial vulvectomy.

Case 1. Mrs. T. First seen May 28, 1930. Age 33, married, 1 child 12 years old. No abortions. Complaints: Frontal headaches, nervous; hot flushes; pain in lower back for past several years, worse at menses. Leucorrhea present since child was delivered. Intense itching of vulva past three years, bad enough to awaken her at night. Menses began at 15, regular 28 day type, scanty, pain before and during flow. Physical examination: Moderately obese, well developed, head, heart, chest, abdomen, urine, and reflexes negative. Blood pressure 168/74. Vulva thick, leathery, whitish, showed signs of scratching. Labia majora flattened, labia minora small, thick and inelastic. Clitoris present but small and leathery with fissure to left. Diseased tissue extending from beginning of mons veneris to outer border of labia majoria and nearly to anus. There was a clear cut line of distinction between the diseased and normal tissue and the contrast seemed to make this line the more prominent. The urethral and vaginal mucosa appeared normal. The area that seemed most involved was the clitoris, labia majoria and fourchette, or where the fourchette should have been. The perineum was badly torn. Uterus normal size and position. Cervix lacerated and eroded.

Treatment—Cauterization of cervix; crude coal tar dram 1 to Lassars paste ounce 1 to be applied locally and ovarian empletes internally. Beginning with this I went through the pharmacopea, and between what I could find and her friends could think of, we tried nearly all the known and part of the unknown remedies for this condition. The endocervicitis cleared up very rapidly with cauterization and the leucorrhea was very much better, but the pruritis continued. To give an illustration of the severity of the disease, this patient would go shopping at night. Then she would have her husband park the car near the store. When she could stand it no longer, she would retire to the car, scratch till she was satisfied and then return to her shopping. After nearly 17 months of treatment and much persuasion from her husband and myself, she decided to be operated. On October 7, 1931, under avertin and ether anaesthesia she had a vulvectomy, perineal repair and appendix removed. She made an uneventful recovery, except that she had to be catherized for 10 days following the operation. She had a slight return of the itching in the region of the mons, but the tissue

looks normal and I believe it of no consequence. She is delighted with the operation. The sexual act is satisfactory with response.

Case 2. Mrs. B. First seen October 20, 1930, age 55, widow, 5 children, no abortions. Complaints: Nervousness, hot flushes, palpitation of heart, weakness, leucorrhea and irritation of vagina for past several years. Menses 5 years ago. Menstrual history essentially negative. Physical examination: Well nourished and well developed, tonsils infected, heart fast and irregular, no murmurs, blood pressure 200/110, chest and abdomen negative and reflexes exaggerated. Urine contained trace albumin and few hyaline casts. Vulva whitish, thick, leathery, with some signs of scratching, same area involved as in case No. 1, except that in this case the process extended more around the anus and involved a hemorrhoid next to the perineum. There were fissures about the fourchette; and on the right side of the labia majora, there was a small elevated whitish placque. The labia minora was well developed in this case and not very much involved. The disease in this instance was evidently having a downward tendency. The perineum was lacerated; the cervix lacerated and badly infected. Uterus normal position and atrophic, pelvis otherwise negative.

Remembering my experience with case No. 1, I told her that she would probably have to have the diseased tissue removed. This she was loathe to do. The cervix was treated with endothermy and the leucorrhea improved, but not the pruritis. The tonsils were removed and her general condition improved, the blood pressure returned to normal and the albumin and casts cleared up. After observation and treatment for a year, an excoriation appeared on the labia majoria that would not heal. It was so sore she could not scratch it, and any of the salves I had given her for pruritis burned her so bad that she could not stand it. This excoriation had a firm base not unlike that of a syphilitic ulcer. After explaining to her that this might be a beginning malignancy, she consented to operation. On November 10, 1932, nearly 13 months after I first saw her, she was operated on under avertin and ether anaesthesia. A complete vulvectomy, perineal repair and the anterior hemorrhoid removed. She was kept under barbituric acid preparations for the first 4 days. She voided the fourth day and except for a mild pyelitis made an uneventful recovery. All the pain left her on the tenth day, on the twelfth day she could sit comfortably. She has had return of neither pain or itching since.

At the present time I have another case which involves only the perineal region. What the outcome is going to be I do not know. She does not wish to be operated on, and I am not anxious to do so, until I feel satisfied that other areas on the vulva are not going to be involved.

Conclusion—Kraurosis should be watched for and when found the patient kept under observation and different treatments tried. The patient should be advised of the poor prognosis and what she may have to resort to.

BIBLIOGRAPHY

Graves' Gynecology, 4th edition. William P. Graves, A.M.A., Journal 1929, Volume 92, page 1244.

Walscheid, Abdomino-Pelvic Diagnosis in Women.

Frank, Gynecological and Obstetrical Pathology.

CHAIRMAN MOORE: Gentlemen, this intensely interesting and almost classic paper of Dr. Johnson's is before you. It seems to me he epitomizes the tragedy which has surrounded this sort of disease. I can only comment by saying I don't know of anything the Doctor didn't do for that woman except raise the gallbladder. (Laughter) I would like to hear your comments on the paper. Is there discussion?

Dr. Robert Crawford, will you open the discussion on this paper?

DR. ROBERT H. CRAWFORD (Rutherfordton): It certainly is a distressing condition. I just want to ask him what success he has had with injections of dilute hydrochloric acid? We have had several of these cases in which we have used dilute hydrochloric acid with some degree of success. One man was apparently very much relieved. I think he has gotten entirely well. It was only a short time ago.

CHAIRMAN MOORE: Gentlemen, will you continue the discussion?

DR. ROBERT THRIFT FERGUSON (Charlotte): Mr. Chairman. This is no doubt one of the most distressing conditions that can occur to any human being. A majority of these cases do not desire an operation. I have made up my mind on the next case I see to try multiple incisions in the skin. I have an idea that the severing of all the nerve connections might do good.

Dr. Johnson's operation is certainly interesting and I think will give results in most cases over a long period of time.

I also want to apologize to Dr. Griffith for not saying anything about the use of calcium in bleeding. I overlooked it entirely.

My experience with calcium in hemorrhages has been unsatisfactory always. I have had very poor results and have given it up entirely. We try many drugs in these conditions that are valueless and the only way we can learn their value or their non-value is by using them and ruling them out.

CHAIRMAN MOORE: If there is no further discussion I will ask Dr. Johnson to close.

DR. JOHNSON (closing discussion): In regard to hydrochloric acid, we did not try that.

In regard to Dr. Ferguson's idea about cutting or making multiple incisions, I have seen a report recently from Mayo's where they cut the ilioinguinalis nerve, and that is something to think about.

CHAIRMAN MOORE: That, gentlemen, completes the program, as Dr. Griffith's paper comes before the General Session, or the Fourth General Session this afternoon.

We will hear now the report of the Committee on Nominations by Dr. Robert Ross, Chairman.

Dr. Ross: Mr. Chairman, the Committee would like to submit the name of Dr. R. W. Spicer, of Winston-Salem, for Chairman for next year.

Chairman Moore: You have heard the report of this Committee. What will you do with it?

. . . The report of the Committee was adopted, upon motion duly made, seconded, and carried. . . .

Chairman Moore: Dr. Spicer of Winston-Salem is elected Chairman of this Section for next year.

The Committee on the Moore County Award will hear Dr. Griffith's paper before making its decision because it properly comes in this Section and I will ask the Committee of which Dr. Spicer is Chairman to make its report to Dr. John Watkins who is the Chairman of this Section, in whose place I have presided in somewhat cavalier fashion. I want to say, however, that I was not obligated by the usual rules since you didn't elect me as Chairman, and I could do as I pleased, and I want to say further that what started out to me like a rather crumby session has turned out to be a pretty darn good one.

Thank you, gentlemen. I will entertain a motion to adjourn.

Dr. Procter: I move we adjourn.

. . . The motion was seconded and carried. The meeting thereupon adjourned at eleven thirty-five o'clock. . . .

PUBLIC HEALTH AND EDUCATION

WEDNESDAY, APRIL 20, 8:30 A.M.

The meeting convened in Lecture Room "C" of the Robert E. Lee Hotel, Winston-Salem, North Carolina, at eight-thirty o'clock, Dr. C. C. Hudson, Greensboro, Chairman.

CHAIRMAN HUDSON: Ladies and Gentlemen—The Section on Public Health and Education will come to order. This morning we have as the first speaker on the program a gentleman who is well known to most of you in the field of Public Health and general education work of the State, and I am particularly pleased that we can have this as the opening number on our program. Dr. McBrayer, as you all know, for years has taken the lead in tuberculosis work in the State and the results which have been obtained in this field can largely be attributed to his efforts, and I am particularly pleased to present to you this morning Dr. L. B. McBrayer, Executive Secretary of the North Carolina Tuberculosis Association and Secretary of the State Medical Society who will present the first paper on "Tuberculosis in Early Adult Life and Its Prevention." (Applause)

A STUDY OF THE FACTS REGARDING DEATH RATE FROM TUBERCULOSIS BETWEEN THE AGES OF 19 AND 40, AND WAYS AND MEANS OF COMBATTING SAME

As we proceed you will notice that we have taken some liberties with our subject. Among these you will note that while not required by our subject so to do, we are studying the subject from the standpoint of North Carolina, and in comparison with similar findings for the United States as a whole. Further, we have made our figures and graphs cover the life span, for the reason that they would seem more valuable and perhaps the age group between 19 and 40 will stand out the more prominent thereby. Furthermore, when we take up a discussion of the second part of our subject, "Means of Combatting Same," we will necessarily have to deal with the age group from birth to 19.

We would call your attention to Graph I and tables (1) and (2) that support it. You will readily see in Graph I that beginning at age 10 there is a very rapid rise until in the United States as a whole the point of 113 per 100,000 is reached at age 20, then a less rapid rise until 119 is reached at age 25 when a gradual decline is shown to 95 at age 45. While the light line which represents North Carolina shows only one-half as many as the United States at age 1-5, at age 10 it shows a more rapid rise to age 20 where it registers 138 per 100,000 against 113 for the United States as a whole. This rise continues a little less rapidly to age 30 where it reaches its peak of 171 per 100,000. A rather rapid decrease begins at age 30 and at age 40 the figure stands at 126 against 95 for the United States. Only at the two extremes of life does North Carolina compare favorably with the United States as a whole.

CHART I. DEATH RATES FROM TUBERCULOSIS, ALL FORMS, BY AGE
North Carolina and the United States Registration States—1929

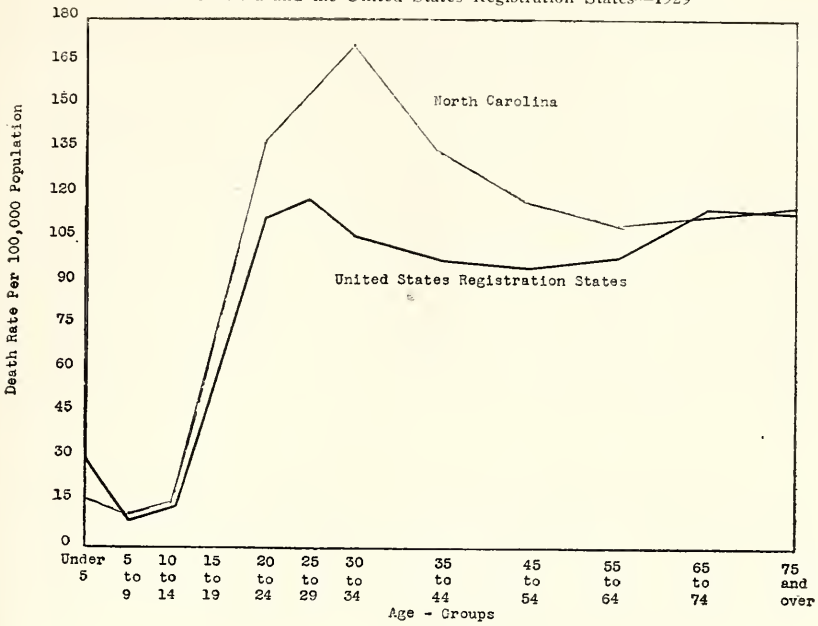


TABLE I

DEATHS AND DEATH RATES FROM TUBERCULOSIS, ALL FORMS BY AGE

North Carolina, 1929

Age	Estimated Population July 1, 1929	Tuberculosis Deaths, All Forms	Tuberculosis Death Rate per 100,000 Population
Under 5	388,784	63	16.20
5 - 9	421,883	47	11.14
10 - 14	277,657	56	14.83
15 - 19	353,876	283	79.97
20 - 24	299,518	412	137.55
25 - 29	236,120	363	153.74
30 - 34	193,813	333	171.82
35 - 44	336,712	455	135.13
45 - 54	253,451	298	117.58
55 - 64	147,117	164	111.48
65 - 74	79,958	91	113.81
75 and over	34,471	40	116.04

TABLE II

DEATH AND DEATH RATES FROM TUBERCULOSIS, ALL FORMS BY AGE

United States Registration States—1929

Age	Estimated Population July 1, 1929	Tuberculosis Deaths, All Forms	Tuberculosis Death Rate per 100,000 Population
Under 5	10,776,357	3,392	31.48
5 - 9	11,782,632	1,226	10.41
10 - 14	11,234,920	1,529	13.61
15 - 19	10,729,614	6,464	60.24
20 - 24	10,123,442	11,355	112.17
25 - 29	9,229,125	10,872	117.80
30 - 34	8,571,859	9,132	106.53
35 - 44	16,148,420	15,846	98.13
45 - 54	12,247,823	11,803	96.37
55 - 64	7,914,958	7,877	99.52
65 - 74	4,445,227	5,135	115.52
75 and over	1,800,682	2,078	115.40

Graph II and the supporting tables (3) and (4) show death rate by age and sex for North Carolina which shows light dash line (female), light solid line (male) and the United States which shows heavy dash line (female), heavy solid line (male). The figures and graphs show in a general way the same as in the preceding graph, that is, about twice as many deaths in the United States in the age group 1-5 as in North Carolina; it shows, however, that in the United States there are more males than females while in North Carolina the female deaths preponderate. Then in the age group 5-10 we notice the deaths among males keep on the level at 9 per 100,000, while deaths among females both for North Carolina and the United States begin to rise at 5. The light dash line shows female deaths in North Carolina rising more rapidly than the average for the United States shown by heavy dash line. The female deaths for the United States reach the peak at 132 at age 20, then recede, crossing below the heavy solid line representing males at 107 and at age 29 this continues. At age 40, the female deaths for the United States stand at 72 against 120 for males.

In the age group 10 and particularly 20 to 40, North Carolina does not compare at all favorably with the average for the United States. Again the "female is more deadly than the male." The light dash line showing deaths of females in North Carolina is more nearly perpendicular than any of the 4 lines, and reaches 165 per 100,000 at age 20. Its peak occurs at age 25 where it reaches 176, then a moderate decline for 5 years followed by a much more rapid decline to age 35 when it reaches 114. The decline is very slow from age 35 and at 40 it stands at 112—it does not go below 110 per 100,000.

CHART II. DEATH RATES FROM TUBERCULOSIS, BY AGE AND SEX
North Carolina and the United States Registration States—1929

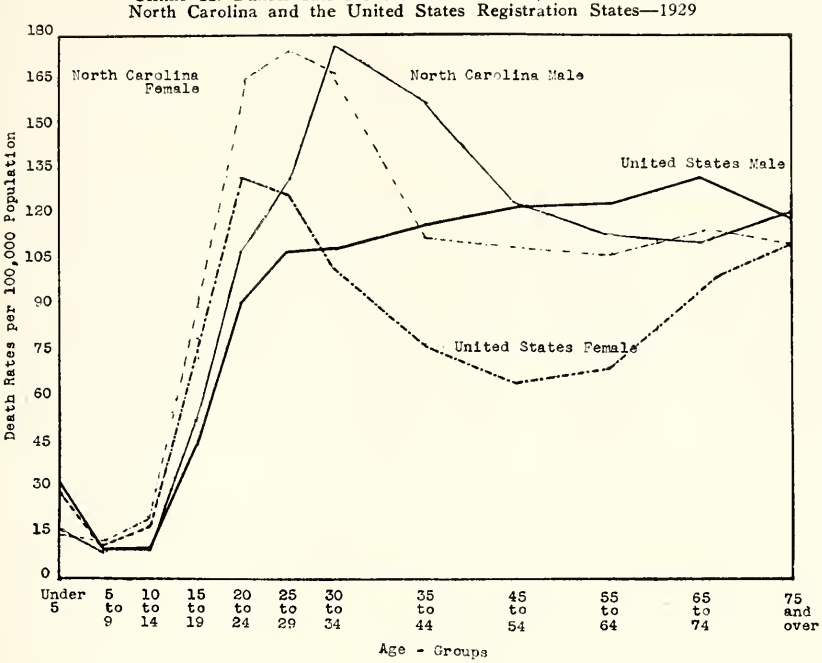


TABLE III

DEATHS AND DEATH RATES FROM TUBERCULOSIS, ALL FORMS BY AGE AND SEX

North Carolina—1929

Age	Male			Female		
	Estimated Population July 1, 1929	Tuberculosis Deaths, All Forms	Tuberculosis Death Rate Per 100,000 Population	Estimated Population July 1, 1929	Tuberculosis Deaths, All Forms	Tuberculosis Death Rate Per 100,000 Population
Under 5	196,975	32	16.25	191,809	31	16.16
5 - 9	212,603	21	9.88	209,280	26	12.42
10 - 14	191,143	18	9.42	186,514	38	20.37
15 - 19	175,187	89	50.80	178,689	194	108.57
20 - 24	141,921	153	107.81	157,597	259	164.34
25 - 29	111,257	146	131.23	124,863	217	173.79
30 - 40	93,535	165	176.40	100,278	168	167.53
35 - 44	164,687	259	157.27	172,025	196	113.94
45 - 54	129,479	161	124.34	123,972	137	110.51
55 - 64	78,049	89	114.03	69,068	75	108.59
65 - 74	41,088	46	111.95	38,870	45	115.77
75 and over	16,480	20	121.36	17,991	20	111.17

TABLE IV

DEATHS AND DEATH RATE FROM TUBERCULOSIS, ALL FORMS BY AGE AND SEX

United States Registration States—1929

Age	Male			Female		
	Estimated Population July 1, 1929	Tuberculosis Deaths, All Forms	Tuberculosis Death Rate Per 100,000 Population	Estimated Population July 1, 1929	Tuberculosis Deaths, All Forms	Tuberculosis Death Rate Per 100,000 Population
Under 5	5,466,966	1,808	33.07	5,309,391	1,584	29.83
5 – 9	5,961,485	609	10.22	5,821,147	617	10.60
10 – 14	5,677,560	581	10.23	5,557,360	948	17.06
15 – 19	5,346,226	2,308	43.17	5,383,388	4,156	77.20
20 – 24	4,964,302	4,532	91.29	5,159,140	6,823	132.25
25 – 29	4,562,956	4,919	107.80	4,666,169	5,953	127.58
30 – 34	4,292,133	4,683	109.11	4,279,726	4,449	103.96
35 – 44	8,283,709	9,686	116.93	7,864,711	6,160	78.32
45 – 54	6,404,840	7,873	122.92	5,842,983	3,930	67.26
55 – 64	4,112,935	5,160	125.46	3,802,023	2,717	71.46
65 – 74	2,264,344	3,014	133.11	2,180,883	2,121	97.25
75 and over	858,016	1,030	120.04	942,666	1,048	111.17

The light solid line, representing male deaths in North Carolina, does not rise quite so rapidly and at age 20 is 108. It does not reach its peak until age 30, as against age 25 for North Carolina females, when it reaches a little higher than the female and to 177, though 5 years later than the peak for the female. The light solid line, representing male deaths in North Carolina, continues above the light dash line, representing female deaths in North Carolina, the remainder of the life span. At age 40, the death rate is 141 against 112 for female. At age 45, it has reached 123 and comes below the heavy solid line, representing the average death rate for the United States for males, and remains below for the remainder of the life span.

Graph III and supporting table (5) shows deaths from tuberculosis in the United States by age group, sex and color. It is very interesting and very illuminating. At a glance you see that a large part of our problem is with the negroes. The dash lines represent the females. The solid lines represent the males.

In this graph, the rise begins at age 10, but it is much less abrupt in the white than in the negroes. The death rate for the white female reaches its peak of 96 per 100,000 at age 20 and then begins a gradual decline crossing the heavy solid line, representing the death rate for white males, at age 29, the rate for both male and female being 90. The line continues below the heavy solid line, the remainder of the life span, and at age 40 stands at 60, compared with white males at 99.

The heavy solid line, representing death rate for white males, shows a less rapid increase or rise, but continues to rise gradually and reaches its peak at age 60, where it reaches 123. At age 19 it is 65 and at age 40 it is 99.

There is such a striking difference in this graph between the whites and blacks or rather the heavy solid and heavy dash, and light solid and light dash lines that it appears terrible. However, we might remember that there are about two and one-half or 2.8 times as many deaths per

hundred thousand population in North Carolina among the negroes as there are among the whites, while the northern states run from 3 to 5 times as many, however, that does not excuse us one whit.

In the light solid and light dash, the light dash line is more nearly perpendicular and reaches its peak at age 20 at 337 and remains at that peak for 5 years. Then at age 25 it decreases rather rapidly, crossing the light solid line at age 29 and at age 40 stand at 185. It remains below the light solid line thereafter and at age 65 it reaches the level of the heavy solid line at 126.

The light solid line, representing the negro males rises a little less abruptly and at age 20 reaches 264, the peak being reached at age 25, 5 years later than the female, at 296 against 337 for the female. The decline is much less than in the female and at age 40 it is 240 against 185 for the black female. The lowest figure reached by the negro male is 210 at age 55.

Chart III. Death Rates from Tuberculosis, All Forms, by Age, Sex and Color
United States Registration States—1929

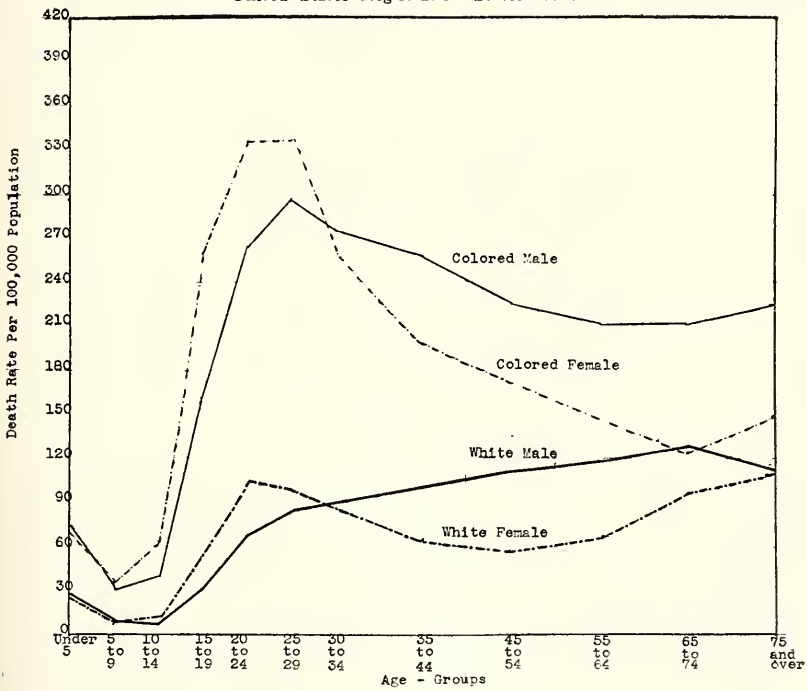


TABLE V

DEATHS AND DEATH RATES FROM TUBERCULOSIS, ALL FORMS BY AGE, SEX, AND COLOR

United States Registration States—1929

Age	WHITE					
	Male			Female		
	Estimated Population July 1, 1929	Tuberculosis Deaths, All Forms	Tuberculosis Death Rate Per 100,000 Population	Estimated Population July 1, 1929	Tuberculosis Deaths, All Forms	Tuberculosis Death Rate Per 100,000 Population
Under 5	4,776,753	1,296	27.13	4,649,950	1,124	24.17
5 - 9	5,248,799	394	7.51	5,101,332	372	7.29
10 - 14	5,037,002	333	6.61	4,914,004	544	11.07
15 - 19	4,742,928	1,336	28.17	4,732,859	2,509	53.01
20 - 24	4,382,094	2,871	65.52	4,518,290	4,661	103.16
25 - 29	4,028,016	3,337	82.84	4,099,604	4,047	98.72
30 - 34	3,852,583	3,474	90.17	3,833,812	3,296	85.97
35 - 44	7,478,293	7,618	101.87	7,064,298	4,554	64.47
45 - 54	5,785,051	6,478	111.98	5,319,893	3,034	57.03
55 - 64	3,800,947	4,499	118.37	3,562,303	2,364	66.36
65 - 74	2,128,355	2,726	128.08	2,061,287	1,973	95.72
75 and over	801,347	903	112.69	880,361	958	108.82

Age	COLORED					
	Male			Female		
	Estimated Population July 1, 1929	Tuberculosis Deaths, All Forms	Tuberculosis Death Rate Per 100,000 Population	Estimated Population July 1, 1929	Tuberculosis Deaths, All Forms	Tuberculosis Death Rate Per 100,000 Population
Under 5	690,213	512	74.18	659,441	460	69.76
5 - 9	721,686	215	29.79	715,818	245	34.23
10 - 14	640,558	248	38.72	643,356	404	62.80
15 - 19	603,298	972	161.11	643,263	1,647	256.04
20 - 24	630,866	1,661	263.29	640,850	2,162	337.36
25 - 29	534,940	1,582	295.73	566,565	1,906	336.41
30 - 34	439,550	1,209	275.05	441,675	1,153	261.05
35 - 44	805,416	2,068	256.76	800,413	1,606	200.65
45 - 54	619,789	1,395	225.08	523,094	896	171.29
55 - 64	311,988	661	211.87	239,720	353	147.26
65 - 74	135,989	288	211.78	119,596	148	123.75
75 and over	56,669	127	224.11	60,729	90	148.20

Graph IV and supporting table (6) represent death rates from tuberculosis by age groups, sex and color in the state of North Carolina and comparable to the United States shown in graph III table 5 just preceding. As will be noted, the peak in both male and female black is a bit higher than the average for the United States. The dash line for North Carolina runs below the dash line for the average for the United States at age 50 and both lines remain below the United States average thereafter. Both lines drop more rapidly in North Carolina and the males are much below the average for the United States, the lowest point being 72.

For the blacks in North Carolina the female death rate begins to rise at age 5 and at age 10 ascends almost perpendicularly. At age 20 it has reached 330 and at age 25 reaches its peak at 393. Then a very abrupt descent to age 35 where it is 204 and at age 40 to 45 it only

recedes to 198. The descent of the light solid line representing the black male death rate for North Carolina drops from its peak in a general way with the drop for black females, which does not obtain for the United States as an average or for any other state we have noted. It crosses the line for the United States male blacks at age 40, rate 240 and continues to descend until age 65 where it is 72 and well below the black female death rate and both are below the rate for whites in North Carolina by 40 points at age 65.

The white death rate for North Carolina for male and female by age groups looks very much better. The ascent begins at age 10, but rises very slowly to age 15. At that age the heavy dash line, representing white female death rate, has reached 30, while the heavy solid line only reached 12. At age 20 the heavy dash line has reached 84 and then descends for a 5 year period which has not been noted elsewhere, and stands at 78. It again ascends for a 5 year period to age 30 where it reaches 102, its first peak. This peak compares with that for negro female at age 25 or 393. There is then a gradual descent to age 45 where it is 76. There is a gradual increase to age 65 where it reaches its real peak of 120, and again gradually descends. Note the female death rate for North Carolina has several peculiarities. It does not reach its highest peak until age 65. Its first peak is reached at age 30 with a rate of 84 while most of the other graphs show peak for females

Chart IV. Death Rates from Tuberculosis, All Forms, by Age, Sex and Color
North Carolina—1929

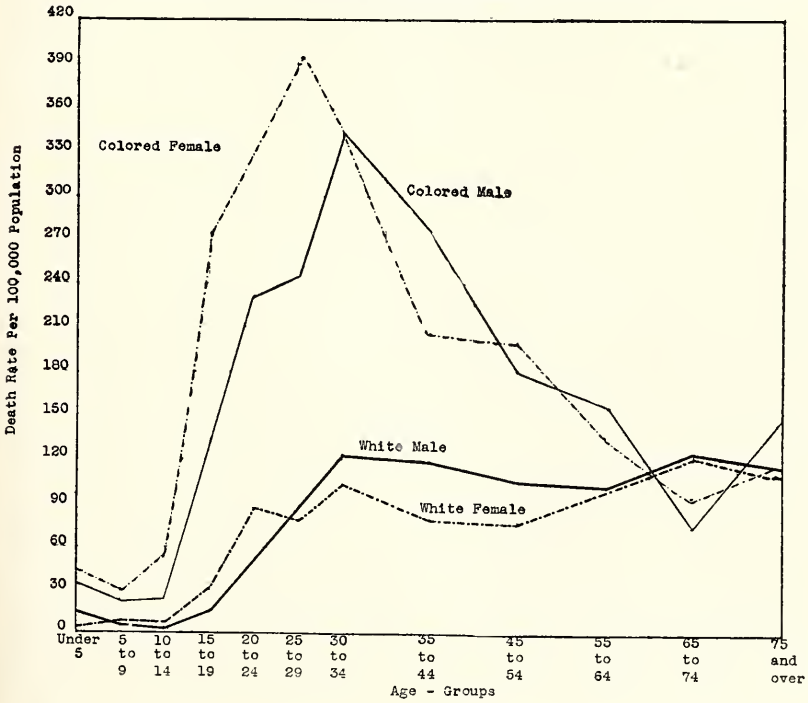


TABLE VI

DEATHS AND DEATH RATES FROM TUBERCULOSIS, ALL FORMS BY AGE, SEX, AND COLOR

North Carolina—1929

Age	WHITE					
	Male			Female		
	Estimated Population July 1, 1929	Tuberculosis Deaths, All Forms	Tuberculosis Death Rate Per 100,000 Population	Estimated Population July 1, 1929	Tuberculosis Deaths, All Forms	Tuberculosis Death Rate Per 100,000 Population
Under 5	138,921	14	10.08	133,165	7	5.26
5 – 9	147,292	8	5.43	143,134	8	5.59
10 – 14	131,785	5	3.79	127,104	8	6.29
15 – 19	119,463	15	12.56	119,426	33	27.63
20 – 24	98,304	53	53.91	106,177	90	84.76
25 – 29	79,667	70	87.87	86,712	67	77.27
30 – 34	69,702	84	120.51	72,745	74	101.73
35 – 44	122,001	143	117.21	122,415	95	77.60
45 – 54	94,168	98	104.07	89,478	68	76.00
55 – 64	58,084	58	99.86	52,939	53	100.12
65 – 74	31,663	39	123.17	30,370	37	121.83
75 and over	12,382	14	113.07	13,627	15	110.08

Age	COLORED					
	Male			Female		
	Estimated Population July 1, 1929	Tuberculosis Deaths, All Forms	Tuberculosis Death Rate Per 100,000 Population	Estimated Population July 1, 1929	Tuberculosis Deaths, All Forms	Tuberculosis Death Rate Per 100,000 Population
Under 5	58,054	18	31.01	58,644	24	40.92
5 – 9	65,311	13	19.90	66,146	18	27.21
10 – 14	59,358	13	21.90	59,410	30	50.50
15 – 19	55,724	74	132.79	59,263	161	271.67
20 – 24	43,617	100	229.27	51,420	169	328.67
25 – 29	31,590	76	240.58	38,151	150	393.17
30 – 34	23,833	81	339.86	27,533	94	341.41
35 – 44	42,686	116	271.75	49,610	101	203.59
45 – 54	35,311	63	178.41	34,494	69	200.03
55 – 64	19,965	31	155.27	16,129	22	136.40
65 – 74	9,425	7	74.27	8,500	8	94.12
75 and over	4,098	6	146.41	4,364	5	114.57

at 25. It crosses the heavy solid line at age 24 and remains below thereafter.

The death rate for white males, heavy solid line, shows a first peak higher than white females which is the first thing of this kind noted in this study. It attains this peak at age 30 like the females, the rate being 120. It remains almost stationary for 5 years and at age 40 is 112. On the whole the death rate for white males in North Carolina is slightly higher than that of white females. Only in the age group 5 to 23 does the white female death rate exceed the white male.

It might be well at this point to quote some statistics on the incidence of tuberculosis in North Carolina. The Extension Department of the State Sanatorium in coöperation with state and local tuberculosis associations, health departments, and other organizations, has examined more than 130,000 school children in North Carolina in the last 4 years. The average showing positive to the tuberculin test is 18%, about 1.8% of the whole number have what is now known as childhood tuberculosis

while a few, but very few have the adult type of tuberculosis and are capable of infecting those with whom they come in contact and are in need of treatment in a sanatorium. Five per cent of the whole number are in need of close supervision in schools, removal of all defects, cure of all other diseases, supervised rest, frequently on a cot, only such exercise as may be prescribed by the physician, plenty of rest at home and sufficient food of the proper kind. The remaining 12% should have supervision and all should have re-examinations every year or more often as indicated. The number infected with the germs, all of them positive to the tuberculin test, vary with the amount of tuberculosis in the community and the method of caring for same. In New Hanover County where they have had a sanatorium known as the Red Cross Sanatorium for many years and where for the most part far advanced cases (always spreaders of tuberculosis) are cared for and thus taking them from their homes where they were infecting the members of their family and others, the per cent positive to the tuberculin test was only 8, while in Watauga County, where there is only a small amount of tuberculosis and only about 6 deaths annually, the percentage was only 4. In Gaston County with a population of 78,000 and about 33 deaths annually, giving a rate of 42.3 per 100,000 the average positive to the tuberculin test was 9.9. Then in some counties it has shown as high as 22% infection. In the Gaston County clinic there were examined 9,743 children. Of these 471 were colored. This study represented 75% of the white school children and 40% of the colored school children. (See table 7)

TABLE VII

RESULTS OF THE STUDY OF THE SCHOOL CHILDREN OF GASTON COUNTY, NORTH CAROLINA, FOR TUBERCULOSIS BY THE EXTENSION DEPARTMENT OF THE NORTH CAROLINA SANATORIUM

P. P. McCain, M.D., F.A.C.P., Director

Age in year	Number tested	Number positive reactors	Percent positive reactors	Number diagnosed as having tuberculosis	Percent of positive reactors having tuberculosis	Percent of Total number tested having tuberculosis
6 – 7.....	1982	143	7.2	24	16.7	1.21
8 – 9.....	2303	186	8.07	43	23.1	1.81
10 – 11.....	2238	225	10.05	53	23.5	2.32
12 – 13.....	1796	203	11.3	34	16.7	1.88
14 – 15.....	866	129	14.89	18	13.9	2.07
16 – 17.....	421	57	13.53	6	10.5	1.42
18 – 19.....	137	22	16.05	3	13.6	2.19
Total.....	*9743	965	9.9	181	18.6	1.87

*This number includes 9272 white and 471 colored.

The children studied comprise about 75% of all the white children in school and about 40% the colored children.

Population of the County 78,000.

We cannot refrain from sounding a pean of praise for Gaston County along this line. As is well known it is a county noted for its large cotton mill industries. It is their proud boast, and rightly so, that they have more than 100 cotton mills in their county. We seem to remember that they have been ridiculed and held up to scorn on the charge of the poor, not to say bad care given their employees, including housing, over work and night work for children, and it seems that we can remember that at one time, but only once, they had a strike. In contradistinction to such calumny we want to congratulate Gaston County on having less tuberculosis among its school children than almost any other county in the state and much less than any county north of here for which we have the information.

We append hereto table 7 which shows yearly age groups, the number examined for each age, number positive to tuberculin test, number having tuberculosis, with percentages. Please do not confuse these percentages, which are based on 100 children, with death rates in preceding graphs and tables which are based on 100,000 population.

Let us call your attention to a few items in table 7 that are worthy of comment and are out of the ordinary.

It is generally believed that the percentages of infection increase with age, beginning with absolutely no infection at birth. And while we are more or less in accord with this belief, this Gaston County study is a very notable exception in that the increase is very much smaller than usually claimed, reaching at age 18-19 16.05%. While the percentage of the whole number examined having tuberculosis reached its height 2.32% at age 10-11. Age group 12-13 showed 1.88%, 14-15 showed 2.07%, 16-17 showed 1.42% and 18-19 showed 2.19%.

Before we take up the next part of this subject, it might be well for us to get fixed in our minds several salient facts:

1. The large majority of the deaths from tuberculosis occur during the age period 19-40 or the 40 might be extended to 45, at the period in life when ones ability and usefulness are greatest.

2. That the increase in deaths from tuberculosis in both sexes, black and white begins at age 10, increases rapidly and reaches peak at age 20 to 25 for females, black, in North Carolina, usually at 20; white females at 30.

3. That on an average males white and black reach a peak about 5 years later than females.

4. That the peak for females is always higher than the males. The whites in North Carolina being the exception, with the peak for the males in North Carolina being 18 points higher and both occurring at age 30.

5. That the death rate in North Carolina is somewhat higher than the average for the United States, due no doubt to our large negro population, and the high death rate in that race. And also to the fact that in our computations we include deaths from other states at Oteen and the many private sanatoriums. Therefore in discussing the next part of our subject, the negro must be given due consideration.

6. That childhood tuberculosis must be found and given proper treatment so that it will not pass into the adult type and produce the

large percentage of all deaths, when the patient has reached the age of his greatest usefulness, economic and otherwise, that is, age 15-45.

PART II

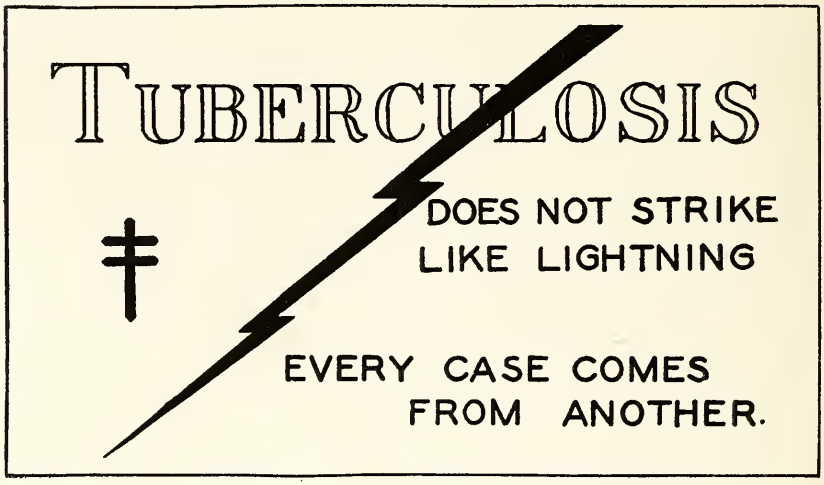
Before we can discuss this part of our subject concretely and intelligently it is necessary to give some attention to the cause or causes of tuberculosis. *The Tubercle bacillus.* That can be answered quickly and correctly by saying the tubercle bacillus, no tubercle bacillus—no tuberculosis. But that answer, correct though it be, needs elucidation. *Contact.* In addition there must be some one to whom the person ill with tuberculosis can and does give these tubercle bacilli, else there is no subsequent case. We call this contact. Every case comes from another. Without contact there can be no tuberculosis. *Massive doses.* Then we know that casual contact will not as a rule produce the disease in another. It requires massive doses and usually repeated doses to produce the disease. *Contact in the home.* The place where these conditions exist and can work to best advantage is in the home. Where a case exists in the home, say father or mother, servant or other person, frequently 100% of those in the home become infected and quite often all die. We examined a man for life insurance a good many years ago who had 10 brothers and/or sisters die of tuberculosis. He too would no doubt have gone the same road had it not been that his mother died when he, the youngest, was born and he was taken to live with an aunt. An old negro mammy who had lived with the family all her life had a chronic fibroid tuberculosis of the lung and had killed all these 10 children with her tubercle bacilli. Since that time we have seen many such tragedies and many other observers and students have duplicated this observation. Not only the members of the family, but the boarders or kinspeople or visitors who spend much time in such homes become infected. A school child who has the adult type of tuberculosis and is a spreader of tubercle bacilli may infect other children. A teacher who has chronic tuberculosis has been known to infect many of the children. Because tuberculosis killed so many in one home, it was once considered hereditary. We now know it is not hereditary but is contagious.

Lowered Resistance. There is one other thing that must be taken into consideration which we call lowered resistance. It seems that disease germs including the tubercle bacillus, find it much easier to cause disease in such persons. This condition is caused by under nourishment, over work, worry, strain, lack of proper amount of sleep and rest, overcrowding, bad personal and group hygiene, other diseases, etc., etc.

It might be proper to say that tuberculosis does not develop quickly after the infection like measles, diphtheria, etc., except when the infection spreads throughout the body, which we call miliary tuberculosis or where the infection goes to the meninges of the brain causing tuberculous meningitis, but rather pursues a very much more leisurely course. Frequently infection that takes place in early childhood does not become disease until adolescence or later. This is particularly true of pulmonary tuberculosis which includes 90% or more of all cases of tuberculosis. Bone and joint tuberculosis are not seen nearly so frequently as before we began the tuberculin testing of dairy herds and pasteurization of our milk, and this refers to our own state particularly.

Now let us discuss "Ways and Means of Combatting Same."

We must keep in mind that tuberculosis does not strike like lightning, but every case comes from another.



Therefore, if every one who has tuberculosis would keep his tubercle bacilli to himself and as the lawyers would say, to his own use and behoof forever, there would be no more tuberculosis. That is very easily done too, but we have not so far been able to get the majority of our people interested in it. Then another thing that stands in the way is, that a great many people who have tuberculosis are not aware of the fact.

It is therefore our duty to teach all the people including those who have tuberculosis that the present cases are wholly responsible for passing tuberculosis on to others and that it is wholly unnecessary, in fact, criminal so to do. The only thing necessary is to shield the mouth and face when coughing or sneezing, place all sputum in a cup and burn gauze, handkerchief, sputum and cup. And in addition wash the hands with soap and water before touching anything that will be used by another. Anyone who nurses or waits on a person who has tuberculosis should not allow patient to cough or sneeze without shielding the face, and should wash own hands before putting them to the mouth or touching anything that is to be eaten by self or others.

Another duty is to *find* the *cases*. Then we add the last four words to the terse statement at the top of this page: "Every case comes from another." *"Find the other case."*

The tuberculosis clinics in schools are one of the most successful methods of finding cases in children, and then trace each and every child that is positive to the tuberculin test into its home, examine every one in the household and find the person in the home who is guilty of infecting the child.

Then the physician in private practice comes in for a large share of responsibility in this matter.

For those who are unable to pay for examination, clinics should be provided.

The Extension Department of the State Sanatorium has 3 clinic physicians employed all of the time and the Sanatorium staff holds diagnostic clinics every day in the year except Sunday and holidays. The latter examine about 3,000 annually and the three clinic physicians examine something like 20,000. So from these two sources about 25,000 are examined for diagnosis annually. Then a clinic is held at each of the county sanatoriums, at least those large enough to have a whole time physician in charge. Some of the larger health departments have tuberculosis clinics and many of the health departments, perhaps all of them, have the extension department of the sanatorium furnish them clinic physicians for occasional clinics. Then many of the life insurance companies give an examination to their policy holders annually at the expense of the company. But these, important as they are, are in no wise commensurate with the needs. Is not every school child entitled to a sound mind and body as well as an education?

It is well to say before leaving this subject that the examination of a child for tuberculosis is not complete unless he has had a tuberculin test and if positive a radiogram of the chest. The examination of an adult for tuberculosis is not complete without the same procedure unless it is so easy to make a diagnosis on account of the extent of the disease, that there can be no doubt about it and even then the X-ray is needed to enable us to see things that perhaps the physical examination does not show, and to make permanent record for comparison in future examinations.

Having found all of the cases in North Carolina, which is the desideratum, these people must be so treated that they will have the best possible opportunity to recover and so supervised that they will not communicate the disease to others.

SANATORIUM TREATMENT

For all adults having tuberculosis and all children who have the adult type of tuberculosis, though very, very few, there is nothing that compares with sanatorium treatment. The remainder of the 18% of school children who are positive to the tuberculin test can be well cared for by the school physician or health officer, the school nurse and the teacher. From these will come the cases that make the death rate so high in adolescence and early adult life at age 19-40 as was shown in the first part of this study. This paper is already too long, but it might be well to call attention to the fact that one-third of this group are in need of rest, many of them on a cot at the recesses rather than sending them out to play. That many of them and all seriously underweight should be in nutrition classes. They should all be taught health habits and followed into the home by nurse and teacher in order that they may see that these health habits are practiced at home. Conditions at home, attitude of parents, etc., should all be carefully noted. These and other things are included under the title *Health Education* which has grown to be quite popular wherever used. Detroit, Michigan, has a population of 1,500,000; 2,400 occupied beds for tuberculosis; annual main-

tenance $2,300,000; public health side $183,615.00. Detroit has one-half the population of North Carolina. At same ratio as Detroit she should have annually: 4,800 occupied beds for tuberculosis; spend for maintenance $4,600,000.00; spend for public health side $367,230.00.

THE PREVENTORIUM

A number of this 18% may still be a little below par at the end of the school year and these should be sent to a Preventorium for the summer. There are several of these in this state now and the results are really marvelous.

The sanatorium and the preventorium have done a wonderful work for the people of this state, and have saved in money hundreds, yes thousands of times more than they have cost. The tuberculosis program in our state could not possibly have reached its present scientific and public health attainments without them, but we need at least 4 times as many sanatorium beds as we now have and at least one preventorium in every county.

AFTER SANATORIUM SUPERVISION

We probably have not stressed sufficiently the supervision of adults after their return from a sanatorium. This should be done by the family physician and the health department. Every person who is infected with the tubercle bacillus must have all defects corrected and all other diseases cured in order that they may be free to get well of tuberculosis.

Summarizing tersely:

(1) Tuberculosis does not strike like lightning.
Every case comes from another.
Find the other case.
- (a) Every school child should be examined for tuberculosis and examinations repeated at intervals. He should be followed into his home and every member of the household should be examined in order to "find the other case" who infected him.
- (b) Private physicians.
- (c) Health department clinics.
- (d) Sanatorium clinics.
- (e) School clinics.

(2) Every person who has tuberculosis has a right to know it, to be so treated that he will have the best opportunity possible for recovery, and so supervised that he will not communicate the disease to others.
- (a) Treatment:
  1. Sanatorium.
  2. Preventorium.
  3. Private physician.
  4. Supervision by Health Department.
- (b) Prevention:
  1. Break the contact.
  2. Sanatorium.

3. Preventorium.
4. Private physician.
5. North Carolina Tuberculosis Association and local tuberculosis associations.
6. Health Departments.
7. Health Department Nurses or school nurse.
8. Health Education including nutrition classes.
9. State, county, and city departments of education.
10. The Press.
11. The Women's Clubs and Parent Teachers Association.
12. All the people—for every person feels the effects of tuberculosis either directly or indirectly.

Note:

(a) When tuberculosis is found in all children who are infected and they are properly treated and supervised, contact with the spreader who infected them being broken, the problem of the large number of deaths now occurring in the age group 19-40 or we might say 15-45 will be solved.

(b) Tuberculosis is easiest and least expensive to find in children, also easiest and least expensive to supervise and cure.

(c) When a case is found in the home and is infecting the other members of the household, the easiest and best way to break the contact is by sending the spreader to a sanatorium. And this program must include the negroes.

(d) In order to carry out this program to its ultimate end, which would in a few years, less than two decades, reduce the incidence of and deaths from tuberculosis to a matter of very minor importance, and in this generation would see tuberculosis become extinct as has yellow fever, we must have:

(1) Three to four times as many sanatorium beds as we now have. A sufficient number for negroes and a goodly number of the remainder for children.

(2) A well organized, well manned, well financed Health Department in every county or the smaller counties may be grouped with a larger county as is now being done in Forsyth, Yadkin, and Stokes, or two or three smaller counties grouped together, every county in the state receiving the same efficient and comprehensive type of health work.

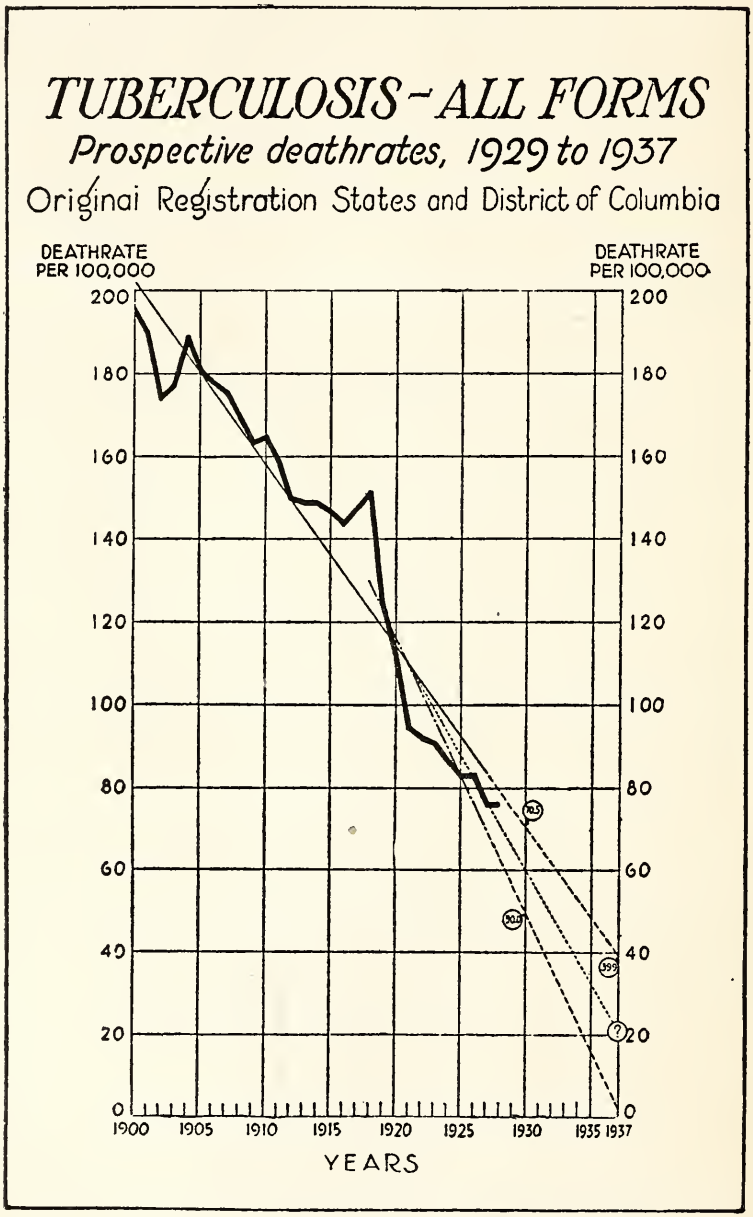
(3) The full and complete coöperation of the state, county and city departments of education, with reference to Health Education, and the clinics in the schools.

(4) Coöperation of all the people in the state.

(5) Program properly financed to make it effective.

We now have sufficient scientific knowledge about tuberculosis, if properly applied, to make this program function and reach the pinnacle of success suggested.

A further word of encouragement:



You will note in this graph that the death date during the last three decades has been reduced almost three-fourths; in other words, if the present death rate of 78 were increased to 204 which was the rate for 1900 it would be 262% increase. The decrease has been more rapid in the last few years than ever before, and is following rather closely the predicted decline, though it is doing a little better than the prediction, 1931 up to and including September showing a decline of 7.5% over the preceding year. It is well to remember that the decline is much more rapid in the white than in the black race. If this decline continues until 1940, we should have a death rate around 25 per 100,000 population at that time.

It is generally agreed that stress, strain and worry and sometimes mayhap insufficient food, such as we in the United States and in North Carolina have been going through for the past few years, are conducive to an increase in tuberculosis. This has been proven many times but more recently in the European nations during the World War, and it may possibly show in our deaths in North Carolina and the United States in 1932 or 1933. The explanation of this failure of increase in deaths to materialize in 1930 and 1931 is that the tuberculosis work has been so well planned and prosecuted with such vigor that it offset the increase in deaths that would usually have shown up under such circumstances and in addition showed a continued decrease.

We are not unmindful of the fact that in any race the last lap is the most difficult, but in this instance we have much to encourage us. It is only within the last 8 years that we have learned how to diagnose the childhood type of tuberculosis, and this alone supplies us with the means of going under the tape, and winning the race without whip or spur, provided only that what is now known about tuberculosis and its prevention is applied to all the people, and the only factor lacking is sufficient money.

THE NATIONAL TUBERCULOSIS ASSOCIATION

I would not be true to myself nor the work in which I have been engaged for a goodly number of years did I not offer a tribute to the National Tuberculosis Association for the large share it has had in the accomplishments in the fight against tuberculosis this last quarter of a century. Beginning in a small way, growing constantly day by day in every way, having in its membership and at its command every physician and every other scientist interested in any phase of the tuberculosis problem, it has been able to call to its aid on any given problem the ablest as well as the best minds of the world, and these studies and researches have covered every phase of the subject, scientific, pathologic, diagnostic, epidemiologic, sociologic, treatment, prevention, education, etc. Truly the National Tuberculosis Association has been the great leader, the great thinker, and the great coördinator in this work. In the beginning all its funds were derived from membership fees, and the total annual amount was small, much too small for the large task in hand. Later the American Red Cross gave to them the full control and use of the Red Cross Seal, which name was changed to the Tuberculosis Christmas Seal, and these have been sold annually for a quarter of a

century, from Thanksgiving until Christmas for a penny each. These seals have for a number of years been sold throughout the United States in every town and hamlet and have during the last four or five years reached the magnificent total of a little more than five million dollars annually. Usually the larger part (in North Carolina 75%) is left in the local town or county for local use under the general direction of the National and State Tuberculosis Associations. This is another evidence of splendid leadership. And it is a fine annual contribution from the people to the fight against tuberculosis.

Again what we need to finish the fight is, sufficient funds

(a) Increased sale of tuberculosis Christmas Seals.

(b) Increased appropriations from state, city and county governments.

Dr. David T. Smith (Durham): I would like to endorse everything said by Dr. McBrayer without qualification. I have had experience in this and worked six years in a sanatorium in Sarenac Lake and I am perfectly convinced tuberculosis can be stamped out by isolation of cases. These figures of incidence of tuberculosis in North Carolina is one of the most hopeful things in the control of it in this state, and the high death rate that occurs later on is probably due to adults becoming infected for the first time. The second point though which we have to emphasize is that our negro population who are infecting the white. You will notice those curves take such a high percentage of death rate in the negro. We have inadequate provisions for isolating negro cases and they are the ones infecting the white children. In Charleston before the Civil War between 1800 and 1860 the death rate of the negro was only a fraction of a per cent higher than that of the white because he had good living conditions. When the negro was free the death rate in the negro more than doubled in the next twenty-five years and with the doubling of the negro rate the white rate increased and it is only getting back now to where it was before 1860, and it is absolutely necessary to isolate negro cases as well as white cases. Tuberculosis can be stamped out by isolation of the cases just as leprosy was stamped out in England. They simply quarantined in camps equivalent to sanatoriums all patients suspected of having leprosy. In a period of a hundred years the last case disappeared and it has not been known since. I am sure we can almost do that by isolating tuberculosis in North Carolina.

One other thing that can be done is to bring them into a general hospital and collapse their lungs and render them non-infective. In Durham we have no sanatorium. The State Sanatorium cannot take all the negro cases we find so for the past six months all of the dispensary patients in negro cases with unilateral tuberculosis, with positive sputum, and only diseased in one lung, we took in the hospital for a month and collapsed the lung by artificial pneumothorax and then let them go home and come back each week to be refilled. It is a perfectly practical scheme and I am interested to find it is being worked in the Michigan demonstration. They have gone even further. If the patient is not able to go to the hospital they send a doctor there and collapse his lung,

not to save a lung but to protect the children there. I want to endorse everything Dr. McBrayer said here. (Applause)

CHAIRMAN HUDSON: Fortunately in North Carolina we have had very few cases of Anthrax but as the number of dairy foods increase it becomes important. Unfortunately we had quite an experience in Greensboro with one of our largest dairies. I have asked Dr. Perry of Greensboro to discuss this subject and bring before you the question of Anthrax and a report of a human case.

ANTHRAX—REPORT OF A HUMAN CASE

By ROBERT E. PERRY, M.D., Greensboro, N. C.

This is the report of a case of human Anthrax occurring in the vicinity of Greensboro during the summer of 1931. From it there is no inclination to draw conclusions as to the type of treatment nor the adequacy of treatment in a given case. However, I can assure you so unusual a disease, with its attendant publicity, causing fear and anxiety in the community, creates a demoralizing situation in the dairying and marketing industries resulting in a large loss of money and time. Also unless you are fortunate enough to practice in a community in which there is a communicable disease hospital you will find yourself devoid of hospital facilities at a time of most imperative need for Anthrax is not admissible to a general hospital.

It is unnecessary to call your attention to the fact that Anthrax appears in two forms. The external type or malignant pustule and the internal type which may be either pulmonary or intestinal in character. All types being caused by the Anthrax Bacillus which is most easily recognized by the simplest microscopical procedure. This organism is a prolific spore former and these spores in hides, hair, wool and the soil are viable for months under the most adverse bacteriological conditions. Indeed, it is almost impossible to destroy them by ordinary medical antisepsis. This is one of the most complicating factors associated with the disease. The facts pertinent to the case here reported are: The disease occurred in a veterinarian forty-two years of age, and who was in excellent physical condition and whose past medical history is of no consequence to this report. The patient performed an autopsy on a cow in a herd, several members of which had died suddenly from an unknown cause. The autopsy was performed without gloved hands on Tuesday, August 4. On Wednesday, August 5, the patient noticed two lesions occurring on the dorsum of the left hand, one at the base of the little finger and the other between the first and second metacarpals, both of which very much resembled mosquito bites. The patient did not place any significance on these lesions. On Thursday, August 6, the lesions were the size of a small pea with an area of edema the size of a dime extending from the base. At this time itching and burning was very noticeable. The lesions were painted with iodine which partially controlled the itching. On Friday each of the papular lesions were capped with a small vesicle. The edema had increased to an area the size of a quarter. There was deep pain and intense burning and itching. Again iodine was applied with temporary control of the subjective

symptoms. On Saturday, August 8, when the patient was seen the whole back of the hand was edematous and the primary papule had a necrotic center. The border of this necrotic area was removed for a smear and culture. A sero sangineous fluid exuded, from which an uncontaminated smear and culture of Anthrax bacillus was obtained. From this twenty-four hour culture a guinea pig inoculation was done which gave a rapidly positive result. At this time there was no evidence of glandular involvement, no chillness, no rise in temperature. The patient complained of a slight headache which he attributed to other causes.

It was evident from the history of the case that the lesions were growing larger and the edema rapidly increasing. The diagnosis was made at eight o'clock p.m. on August 8 and the patient transferred immediately to his home, given a light anesthetic and the lesions excised with the paquelin cautery. The cauterization extending one half of an inch beyond the edematous border of each of the lesions and the whole area removed en mass. The cauterization extended down to the tendon sheaths. The hand was then put up in a wet dressing of bichloride of mercury one to 1000. At five a.m. after obtaining the Anthrax serum from Atlanta, Georgia, by plane, one-tenth of a cc. was given intradermally to detect the possibility of anaphylactic phenomena. Thirty minutes later 100 cc. was given intravenously and 50 cc. given intramuscularly without any untoward effect. Five p.m. 50 cc. more. At this time the temperature was 99.5. By the following morning the temperature had fallen to normal. Four days later the temperature had risen to 102.5 and was septic in character. At this time a smear and a culture were taken from borders of the excision both of which were profusely positive for Anthrax. Positive cultures and smears were obtained for three successive days when the wet dressing was discontinued and Anthrax serum of the veterinary type was applied continuously on gauze. Twenty-four hours after application of Anthrax serum locally the lesions were negative for the Anthrax bacillus on both smear and culture and remained so. The temperature at this time ranged between normal and 102.5. The wound was sloughing which accounted for the temperature. From this time recovery was uneventful with the exception of a serum sickness which followed ten days after the administration of the serum as a marked Urticarial eruption with angio-neurotic Edema. The patient when seen last had free movement of his fingers and a soft scar which has not incapacited him to any great extent. From time to time he has had pain in his thumb due to interference with the sensory nerve by scar and adhesion, but this has not been of any importance.

Treatment of this case has been the text book type. Of course, this case was diagnosed and treated before it reached the classical text book description of the malignant pustule, that is, before it reached the stage of marked necrosis, extensive edema and prostration with glandular involvement. At the present time there is a division of opinion among medical men as to the propriety and effectiveness of excision of the malignant pustule. Many men claiming that excision does not eradicate the focus of infection, but destroys the resistance of tissues, opens up

the vascular system and lymphatic net work for constitutional invasion. On the other hand another group of men claim that excision practically destroys the focus of infection, lessens toxemia and does not promote invasion of the blood stream. All authorities advocate administration of Anti-Anthrax serum as prepared by Sclavo in amounts ranging from 100 to 500 cc.'s depending upon the condition of the patient and the general symptomatology of the case. Personally, I feel that lesions below the elbow and below the knee could be treated effectively without excision. Excision being reserved for small and early diagnosed lesions —older and more established lesions being treated by serum intensively and small cautery punctures for drainage.

The only other case of Anthrax I have treated presented a malignant edema of the face with marked necrosis and prostration. He was given 500 cc.'s of Anthrax serum with partial excision. The patient was moribund when seen and died thirty-six hours later.

REFERENCES

Millard—Free Excision.

Francis, Camp Hancock—Without surgical procedure.

Schole—Mass. Hospital 1888 to 1918. Against—44% died after surgery, 7% after non-surgery.

THE ESSENTIALS OF A SYPHILIS CONTROL PROGRAM IN THE HEALTH DEPARTMENT

By M. V. Ziegler, Surgeon
U. S. Public Health Service, Raleigh, N. C.

It is obviously unfair and unjust to belittle the effectiveness of our control measures as influencing the trend of syphilis. To conclude that our present armamentarium for controlling this disease has been ineffectual and unsuccessful from the standpoint of public health, is indicative of loose thought and illogical reasoning. When we ask ourselves if the known measures for the control of syphilis have been effectually put into force, the answer is in the negative with few qualifying exceptions. A review of the activities in this connection during the past decade reveals that, while a great amount of work in the aggregate has been performed, the results accomplished have not been entirely in keeping with the efforts expended. This has been due largely to the fact that it has been spread over a great area and, with a few possible exceptions, has been piece-meal and sketchy in character and consequently lacking in efficient application. It is too much to even hope that efforts of this character would have any appreciable effect on the trend of a disease as widespread as syphilis. The military forces are examples for the most part in which control measures have been effectually carried out, and in consequence the rate in the army has declined while the rate in the navy has remained stationary. This exception in the navy tends to prove the rule, as the incidence of venereal disease among the personnel groups in the navy is not directly related to the efficiency of the navy medical corps, but it is probably a reflection

of the attitude of the individual commanders of vessels towards venereal disease. Examples are available which clearly indicate that infection occurring among enlisted men in the navy following shore leave in tropical ports, bears a distinct relation to the efforts put forth on the part of the captain of each ship to prevent venereal infections.

Public health workers should be mindful of certain fundamental differences in comparing the success obtained in reducing the morbidity from such diseases as typhoid fever, smallpox and malaria with that which we may hope for in the public health control of syphilis. These fundamental differences:

I. Inherent differences characteristic of the disease.

a. Absence of acute symptoms.
b. Not self limiting.
c. Chronic (of long duration).
d. Non-visibility of the disease (therefore easily concealed).
e. Absence of early incapacitating effects.
f. Office treatment as against home visits or hospitalization.
g. Public disgrace (secretive and moral implications).
h. Spread through intimate contacts usually only single infection results; therefore, explosive epidemic outbreaks do not occur.

II. Certain factors that contribute directly to the reduction in the morbidity of certain other diseases operate indirectly, do not, however, apply to syphilis, for example:

a. In the decline of the typhoid fever rate, one must evaluate such factors as safe municipal water supplies (provided for a large part of the population), extensive sewerage systems and pasteurization of the city's milk supply.
b. In the case of malaria, the establishment of drainage districts and the reclamation of land for agricultural purposes have brought about a tremendous reduction in the morbidity from this disease. These activities were undertaken not primarily as public health measures. The protection thus afforded to a a large number of people is without any initiative on the part of the individuals benefited.
c. Smallpox has been controlled through compulsory vaccination, brought about by requiring vaccination as a pre-requisite to school attendance.
d. Diphtheria is being controlled largely by immunization. Here, too, the school has been a means to accomplishing this end. Because of the effective immunization of school children, the attack rate according the age groups has shifted to the preschool group.

III. Achievements in lessening the morbidity in chronic diseases such as pellagra, tuberculosis, cancer, and in the acute infections such as meningitis, infantile paralysis, whooping cough and measles, has been less spectacular. The measures used for the control of these diseases and the effectiveness of such control measures affords a more reasonable comparison with those available for use in the control of syphilis.

Furthermore, a part of our failure to achieve complete success in the control of syphilis has been due to:

a. Apathy and indifference on the part of the local health authorities and in their negligence in adequately enforcing provisions of the law.
b. Lack of coöperation of the majority of the practicing physicians in observing the provisions of the venereal disease law.
c. Ignorance and indifference on the part of those infected to avail themselves of diagnostic and treatment facilities to which they are entitled.
d. Uninformed public opinion as to the seriousness of the problem and the cost to the state and society of the neglected and untreated cases.

Recent studies made concerning the prevalence of syphilis tend to indicate that the disease is more prevalent among men than women. The ratio of men to women is 3-to-2. These studies indicate that more males than females sought treatment. However, the disparity between the number of white males and the number of white females taking treatment was greater than that between the number of colored males and the number of colored females, taking treatment. From this it is concluded that the negro readily accepts treatment and that the female negro shies less from treatment as compared with the male negro than the white female as compared with the white male.

If it is assumed, on the basis of these studies, that syphilis is almost twice as prevalent among men as among women, it becomes difficult to reconcile this assumption with the fact that the percentage of persons having a positive Wassermann is higher among the females than among the males in unselected population groups of white, colored and Indians.

This may be accounted for in part by the fact that syphilis in the female is frequently unrecognized, and in the reluctance on the part of the female to avail herself of treatment especially those that are required to seek treatment at public clinics.

State Boards of Health are mindful that measures for the control of venereal diseases, like the control of other communicable diseases, can best be prosecuted by and through the local organized health departments. Therefore, venereal disease programs should be included as part of the general Public Health programs of city and county health departments. In counties without whole-time health service, venereal disease control measures rest with the State Board of Health, and must necessarily be carried on as a state activity until such times as the local communities are both able and willing to provide local organized health service. Therefore, in localities unserved by organized health departments the relationship of the State Board of Health is direct with the counties and individual physicians, by and with the advice and consent of the local medical societies.

It is recognized that early treatment is an important factor in the prevention and control of syphilis. The treatment of persons sick with this disease is the function of the physician, and it falls to his lot to instruct the infected individual of the importance of continuing treatment until cured, and in measures to prevent the spread of the disease. It

therefore follows that the physicians share responsibility with the Health Department for the venereal disease control program.

Sometime ago a study was made in New York State to determine where patients suffering with syphilis were treated. This study showed that approximately 30 per cent of the cases were treated in public clinics, 9 per cent in hospitals and state institutions, and 62 per cent were treated by private physicians. This study also revealed that the bulk of cases (those treated by private physicians) were concentrated in the hands of very few physicians—viz., 1 per cent of the physicians were treating 25 per cent; 3 per cent of the physicians were treating 43 per cent; 9 per cent of the physicians were treating two-thirds of the private patients.

Health departments should endeavor to inform the public regarding the seriousness of veneral diseases and the importance of early and adequate treatment. It should encourage physicians in the thorough treatment of cases and make provision for the continuation of treatment when patients are no longer able to pay for private medical care.

The health departments might well follow up lapsed cases from the physicians' offices to insure completion of treatments rather than effecting a follow-up system as a legal measure from the health department.

The public health aspect of the control of communicable diseases requires that the health department's efforts shall be of such character and concentration, and be so directed so as to accomplish the maximum public health protection for the expenditures of time, energy and money.

In applying this standard to the control of syphilis it is apparent that the health department should direct considerable attention to determining the reservoirs and sources of infection by:

a. Discovering of cases.
b. Epidemiological studies of reported cases to detect unknown cases and contacts.

These functions are not debatable health activities but are wholly and definitely within the scope of the health department. In the prosecution of a program for the purpose of discovering cases of syphilis we pursue an indirect course through the use of the Wassermann test. County-wide Wassermann surveys have been made on negroes to determine the incidence of syphilis. Such a procedure is only applicable to selected groups and cannot be undertaken to any great extent without augmenting the regular personnel of the health department. The ways that are available to health departments in and out of season are to include the Wassermann test as a routine procedure of every physical examination advocated or sponsored by the health department. Such examinations include:

a. Periodic health examinations.
b. Examinations of prenatal cases.
c. Examinations for tuberculosis at regular and special clinics.
d. Examinations of employees of industrial establishments.
e. Examinations of beneficiaries of Workmens Compensation and on all *hospital admissions.*
f. Physical examinations conducted by the health department of:
   (1) Applicants for marriage license.

(2) Applicants for admission to state institutions.
(3) Food handlers.
(4) Indigents.
(5) Prisoners.

An epidemiological study of every known case should be made for the purpose of determining the probable sources of infection and to obtain a Wassermann test from family and other contacts. Such procedures will be conducive to bringing under treatment many cases which are foci of infection and which are particularly prolific in the spread of the disease by virtue of the fact that they are unrecognized.

Since more than one-half of the males and two-thirds of the females infected with syphilis come under treatment for the first time more than one year after infection has occurred, it is obvious that syphilis cannot be controlled if these cases are not recognized until more than one year has elapsed after date of onset of the disease. It, therefore, behooves health departments to concentrate on careful case investigation and apply epidemiological principles to the end of bringing this large group of cases under medical surveillance early. It is believed that it is possible, through strictly public health and medical procedures alone, to bring about a reduction in the prevalence of syphilis comparable to that obtained in other communicable diseases.

It is impossible to prepare a program for the control of venereal disease that will be applicable to every county or city in the state. Furthermore, it should be borne in mind that any program which is generally considered as satisfactory cannot be made effective in its entirety in every community. With these qualifying limitations, the following program is submitted:

The control measures for syphilis comprise three basic elements: Medical measures, Educational measures, and Legal measures:

I. The *Medical measures* comprise:

a. Laboratory diagnostic service, including dark-field examinations.
b. Efforts to secure complete reporting of venereal diseases.
c. Systematic and intensive case finding studies through the use of routine Wassermann and epidemiological investigations.
d. Development of venereal disease clinics to supplement the service of the private practitioners.
e. Coöperation with physicians by providing drugs gratis for treatment of cases unable to pay; consultation service and standardization of treatment procedures and follow-up service.
f. Development of coöperative clinician plan, with the approval of the medical society, by the selection of physicians who will agree to treat venereal disease adequately, and to whom cases can be referred by the health department with the understanding that no person shall be refused treatment. In consideration for this service, the health department should furnish the necessary drugs and supplies free to such physicians in limited quantities as follows: arsenicals, mercurials, syringes, needles.
g. Provide medical social service. Follow up lapsed cases from physicians' offices and clinics for the purpose of having cases

complete treatment; to encourage contacts to be *examined,* and, if necessary, treated.

II. *Educational measures.* The health education should be directed so as to portray the nature of syphilis and the serious consequences occasioned by neglect; the importance of early diagnosis and adequate treatment; sex education of youth to develop moral prophylaxis. Specific educational training should be provided for the professional group, which embraces physicians, medical students, nurses, social workers, special training of physicians.

III. *Legal measures.* These measures include the enforcement of laws and ordinances for the repression of prostitution, the quarantine of spreaders and irresponsible patients after other efforts have failed; notification of lapsed cases.

SUMMARY

1. The control of syphilis is primarily a medical problem; therefore, adequate facilities for skilled treatment should be provided in order that no case should go untreated.

2. The private physician is the most important factor in the control of syphilis and he must therefore share with the Health Department the responsibility for the program.

3. The control of syphilis is a public health problem of major importance, a responsibility of the Health Department, and must therefore be integrated with the whole health program.

4. Health Departments must address themselves to uncovering sources of infection by case investigation and epidemiological studies so that appropriate control measures can be instituted and that the period between the time of infection and the time of taking treatment shall be reduced to the irreducible minimum.

In conclusion I wish to state that the control of syphilis is primarily a medical problem. Therefore adequate provisions for skilled treatment should be provided in order that no case go untreated. The private physician is the most important factor in the control of syphilis and must therefore share with the Health Department the responsibility for the program.

CHAIRMAN HUDSON: Is there any discussion of this excellent presentation by Dr. Ziegler?

DR. G. B. MORRIS (Goldsboro): I have had a little experience trying to do something with syphilis in a Public Health Department, having a clinic in a small way. All of these problems Dr. Ziegler has brought up have been stuck in one way or another in experience and I am glad to have had the opportunity to hear this. In my own county undertaking to combat syphilis I have used the educational method more effectively probably than the treatment direct. We have been able to influence our Commissioners who are the levying body of the county and the methods employed were simply to present to them the expense of syphilis. We are in charge of the sick down-and-out people and we are able to diagnose those cases and show the Commissioners that it would pay as much probably as to engage in preventive measures, so by presenting the money side of it we have obtained their promise that they will make

a levy that is not available now but will be next year, a levy of $2,000 on the part of the Commissioners to pay physicians at the rate of fifty cents per treatment. That would provide for thousands of treatments and we just hope that that is a beginning of a real war on syphilis in our county. Of course gonorrhea and chancroid will be included in the procedure. I am very glad that we have had the opportunity to hear this.

I would like to ask Dr. Ziegler one question. My chief difficulty has been in tracing up cases. The discovery of this is the hardest work I have done. Here comes a patient, man or woman, with a primary lesion. Where did he get it? I have made mighty little headway there. (Laughter) When pushing to the conclusion of the thing it was always a man or woman out of town or in another city somewhere. (Laughter) That puts me at a disadvantage. I can write, and have, but we don't get much follow up in that respect. I'd be glad if Dr. Ziegler could, either here or privately, give some instructions along that line.

Dr. G. M. Cooper (Raleigh): As remarked, it seems that the Doctor has more comprehensive information in this paper than any I have seen on the subject. It should have been presented at a General Session before the whole crowd of practicing physicians. They are the ones who should hear this type of paper. Now, he went to the very heart of the matter and I am going to mention but one or two points. First, he alluded to the fact that small pox has been controlled largely as the result of requiring the matter of a series of vaccinations as a prerequisite to school entrance. It is a fact that no progress was made in North Carolina in the control of small pox for fifty years preceding 1913; not until the State Laboratory of Hygiene began giving free vaccine of high quality to any physician in the State who would use it. Dr. Ziegler pointed out another thing in the control of this which goes straight to the point. For several years I have had to answer the correspondence of the Board of Health pertaining to these matters and we get letters practically every day of the year from all over the State running something like this: "I have had syphilis or gonorrhea six or twelve months, or two years. I have been to doctor so and so, or several doctors. I have spent all the money I have and I want to know what to do." Well now, we can't refer these persons to the clinics because there are but few clinics near them. The Doctor has pointed out here that the health department should encourage physicians in the very thorough treatment of cases and make provisions for the continuation of the treatment when the patient is not able to pay for private medical care. The health departments might well follow up lapse cases insuring their treatment rather than allowing them to infect others. I think that is the best solution of the whole problem.

Forty-nine counties have some form of an all-time health organization; but what are we to do with the counties that have none at all. It means that we will have to induce this follow-up work through the physicians themselves. In my judgment it is this one thing that will help largely in the control of syphilis. That is, for the State to furnish free anti-syphilitics to every physician in the State who will agree to give these treatments in consideration of his promise to give the treat-

ments free of charge to all of the patients referred by the Health Department, these supplies to be used by him in the treatment of all his patients. I think that these things should be brought about with as little publicity as possible. We must remove it from the field wherein the moral element is involved. In other words, if we can get the physicians and the people to look upon it as they regard typhoid fever or diseases of that type, we will have gone a long way. You know, it took a long time to make such progress in tuberculosis. Those are some of the things I wish to offer for consideration.

I want to mention the fact that there is going to be a drive on the next Legislature to remove the restrictions or requirements for physical examination before marriage. On the other hand there is going to be an effort by many agencies to strengthen our marriage laws by requiring the Wasserman test for every one; women as well as men. At present the examination simply covers the examination of tuberculosis for women and venereal diseases for men. As pointed out, every survey made proves there are more women infected than men with syphilis. Now if we can get the Wassermann requirement we will go a long way and be able to get to the root of the thing. Now, there are agencies trying to have this law repealed altogether. There are a number of officials from offices of Registrar of Deeds. Only yesterday I saw a letter in Raleigh *News and Observer* from a Register of Deeds in one of the counties between here and Raleigh arguing and setting forth that men should be elected on the platform of repealing this law. His office is forty-five miles from Danville, Virginia where they require no examination. Virginia sells a marriage license for two dollars and I believe North Carolina charges four dollars. They can therefore go to Virginia and save two dollars he says. He can by driving forty-five miles; but he is ignoring the purpose of the law altogether. That class of politicians have to be dealt with but if we can keep on with the educational work we are doing we will eventually get a law enforced that will help greatly in controlling venereal diseases as well as many others. (Applause)

By the Chairman: If there is no further discussion, Dr. Ziegler will close.

Dr. Ziegler (Closing): In regards to the question, that is the very thing I had most particularly in mind. The question of following up the cases and dealing with the source of infection. I personally feel the Public Health Departments have not put forth the efforts in that direction we should have. We do not pursue the same course with reference to pursuing or determining the courses of venereal disease infection as if we were fighting cases of typhoid or diphtheria. I am not unmindful of the difficulties that beset us because of the things you have already mentioned, the moral implication and the secretive character. However, much can be accomplished through the development of the coöperation and confidence of the individual patient by the physician and the Health Departments and medical social service agencies. But further than that, the important thing is to determine the possible exposures. We all recognize a person with syphilis can determine in his own mind the exposures. That is not true with reference to typhoid but each individual

with syphilis, unless she goes beyond a period of years, which many of the cases do, has definite knowledge of the exposures. That is not true with reference to typhoid and other diseases but it is in the venereal diseases as to the number of exposures, when and where. (Applause)

A COUNTY ANTI-TUBERCULOSIS PROGRAM

By P. A. Yoder, M.D., Superintendent Forsyth Tuberculosis Sanatorium

The success of any anti-tuberculosis program can be measured only by its effect—both immediate and long deferred—on the mortality, morbidity and incidence rates of the disease. Plus a certain amount of added benefits derived from temporary relief of distress and suffering. A complete success can be attained only by finding and accurately diagnosing and classifying every single case, including both adult and childhood types, as well as all extra-pulmonary cases; administering needed treatment; providing comprehensive and long continued follow-up measures; and putting into practice, in every household where infection exists, the known methods of prevention. While such a result theoretically is possible, practically we must, for the present at least, content ourselves with much less, realizing that the approach to the ideal is greatly handicapped by numerous factors; lack of funds; lack of united and coöperated efforts; lack of health education among the rank and file of the masses—and others too numerous to mention.

In general the program should head up in the County Sanatorium, or if one does not exist, then in the Health Department, or in the County Tuberculosis Association. This agency should strive diligently to correlate and unify the efforts of the different groups and the individual workers. There must be the closest coöperation between all tuberculosis workers, local, state and national organizations, practicing physicians, health departments, social and welfare agencies, school authorities and teachers, civic clubs, the press, and the people generally.

Case Finding. The practicing physician is, or should be, the most important factor in picking up new cases, especially the early ones. He need not be an accomplished physical diagnostician or have special training in chest examinations to carry out his part in this program. But he must be (to use the trite phrase of the day) "tuberculosis conscious"—so that when a patient comes in complaining of excessive tiredness, lack of energy or appetite, post-prandial distress, or some other minor symptom, or group of symptoms—he thinks not only of chronic tonsillitis, or other focal infection, a chronic appendicitis, or the so-called "nervous indigestion"—but also remembers that the Tuberculosis Bacillus usually starts his inroads into the human anatomy with just such a picture.

The suspected case is virtually a diagnosed case. With the present distribution of private X-ray and chest specialists, the County Sanatoria, the State Sanatorium Out-patient and Extension Department Clinics, etc., the number of once definitely suspected cases that go on to an advanced stage before definite diagnosis is practically negligible. If there is a County Sanatorium, it should have modern X-ray and laboratory

equipment; and should maintain an out-patient department where patients financially, or otherwise, unable to obtain X-ray and other specialized services can be referred by their family physician or health department, and given the advantage of all modern methods of diagnosis. If there is no county sanatorium, the practitioner and the health officials should take every advantage of the State Sanatorium Traveling Clinics and Out-patient Clinic services. School nurses, teachers, parents—must be taught to watch for and suspect cases. School Clinics, consisting of the tuberculin test, physical examination and X-ray films for diagnosis of childhood type infection, should be held—the county Medical Society, the school health authorities and the county or state Sanatorium coöperating. In addition to picking out the childhood cases and assuring for them proper treatment—these school clinics and cases found otherwise furnish much valuable information which, if followed out completely, will result in many unsuspected cases which are serving as foci of infection, being brought under observation. All members of the household in which a case of tuberculosis of any type is discovered, including family and employees, should be given a tuberculin skin test; all positive adult reactors should then be given a physical examination with X-ray study if any suspicions but not definite physical signs found; and all positive children reactors should be given physical and X-ray examinations. When a case of tuberculosis is found in an adult, every member of the family should be examined in order to ascertain and care for those in the family who have been infected by this adult; and the infecting adult should be isolated from the rest of the family, preferably in a sanatorium. When tuberculosis is found in a child, every member of the family should be examined in order to ascertain and remove and treat, the person responsible for the infection of the child; and find and care for others in the family who may likewise have been infected.

After the cases are found, accurately diagnosed and classified, there must be, as required by law, a complete recording and reporting of all cases, first to the local Health Officer and by him to the State Authorities.

Treatment of Cases. More and more the medical profession is adopting the belief that all pulmonary cases (and practically all other types of tuberculosis) should be hospitalized as long as the disease is active, or in immediate danger of becoming active again. There may be some exceptions to the universal application of this belief—but we can certainly agree that at least a vast majority of all cases need sanatorium care, for at least a long enough period to be taught the essentials of, and the necessity for, proper treatment and the common methods of prevention of infecting others. Each county should have a county sanatorium, or an interest in one maintained by several counties, or if neither of these is possible, then the fullest advantage should be taken of the service rendered by the State Sanatorium—the County Government taking care of that part of the cost of its pauper cases not assumed by the State. Welfare and social service agencies must contribute to this phase of the program also—especially when the case under treatment is the breadwinner in the family—by providing for dependents and helping to maintain the family unit until such time as the patient is

restored to his original status. Patients financially able to take care of themselves should of course go to private sanatoria until such time as they are safe, from the standpoint of infection, and the family physician thinks it advisable for them to return hom.

Follow-Up Work. Thorough records should be kept of each case, from the time it first comes under observation until its termination. And in addition, records should be kept of all other members of the family and intimate contacts. From this data, much valuable information can be obtained in years to come. Recovered tuberculosis patients should permanently keep themselves under more or less close observation by their family physician, appearing regularly to him for a check-up on their condition and for his advice. The out-patient department of the County Sanatorium and its facilities should be made available to, and used by, all physicians in the county as a consulting service. Charity cases must be kept track of by the Health Department and periodically checked up either at the County Sanatorium, or at the State Sanatorium Clinics.

Prevention. This of course is primarily a Public Health function and should, in general, be directed by the Health Officer. He and his school nurses, aided by teachers and school officials, are in a position to so train the coming generation that thousands of otherwise unavoidable cases will never occur. His department also should stress its nutrition classes, its health habit formation work, and direct and lead an active campaign to promote general information and support of the whole program. His general program of physical defect detection also is important to the tuberculosis fight. And here again the important word is coöperation—every single agency in the whole program must play its part, the practitioner seeing to it that his patients are instructed in and follow the methods of infection prevention and lending his support individually and collectively to any and all movements sponsored by any agency which will help in disease eradication. Sanatoria must train patients so that after discharge they will not only practice preventive measures but will also act as foci for the dissemination of useful information regarding tuberculosis and how it may be prevented. School authorities and teachers, civic clubs, the press, local tuberculosis associations—all must help—especially in matters such as seal sales, summer camps, or preventoria, campaigns to interest and inform the public, etc. State and National Tuberculosis Association aid must be sought and will be gladly furnished, to the fullest possible measure.

The magnificent results of anti-tuberculosis work, in recent years—United States death rate reductions from 202 in 1900, to 160 in 1910, to 114 in 1920, to approximately 70 in 1930, have been achieved mainly by improvements in general methods—earlier diagnosis, improved methods of treatment, more scientific and accurate knowledge of the disease itself, etc. But from here on out, the battle will almost certainly be continuously becoming more and more restricted. And, barring the somewhat unlikely discovery (at any very early date) of an effective prophylactic, or specific curative agent, future decreases in rates must depend more and more on complete and compact organization. A well knit county unit—with all interested agencies solidly be-

hind a balanced program—and as full a one as local circumstances will permit—in each county of our State, most certainly will result in a giant stride forward in the Anti-tuberculosis Campaign.

Dr. John Donnelly (Huntersville): Mr. Chairman, Ladies and Gentlemen: I am of course particularly interested in Dr. Yoder's paper because I have been for a number of years interested in the development of a similar plan for tuberculosis control in Mecklenburg County. Dr. Yoder's outline is certainly comprehensive and also practicable. For the most part it can be incorporated in the program of any county. I have nothing in particular to add to this plan except one or two points I would like to emphasize.

I have been of the opinion for a good many years that a tuberculosis clinic in connection with a health department with a well organized staff gives more actual value per dollar spent than any other part of a tuberculosis program. This clinic can be conducted, probably not elaborately, but it is valuable for several reasons. In the first place, in my opinion a tuberculosis clinic should be conducted as near the center of population as possible. That is, of course, for obvious reasons. I don't think the conduction of a tuberculosis clinic, particularly if it is to be used as an out-patient department, should be too far removed from the sanatorium, unless it can be conducted along the lines of a sanatorium, when the sanatorium is too far removed from the center of population, because the cases that will come to that clinic are usually not possessed of any great amount of funds and can't pay transportation. Your clinic conducted in the city or easily in reach is probably more effective. As an illustration of that, over two-thirds of the cases admitted to the Mecklenburg Sanatorium come in through tuberculosis clinics. The sanatorium of course is necessary for several reasons, not only for treatment and rehabilitation of cases when possible but it is also my opinion it should be used as a housing place for even the far advanced and hopeless cases. I think every day an advanced or hopeless case taken away from numerous contacts means that much in your eventual plan for eradication. I think the advanced cases should be housed just as the cases that may be susceptible to treatment, but a tuberculosis clinic, in my opinion, has another very important office, and that is as a base for following up your discharged sanatorium cases. The sanatorium treatment of tuberculosis, in my opinion, particularly the county and state treatment, is not primarily humanitarian. Of course it is essential and necessary to save lives when possible, but the main object is to return those patients to some form of industrial production, help him get back on his feet where he can make a living for himself and family. Practically a hundred per cent of the inmates and patients in a public institution belong to the low wage class. Their wages are always low and for that reason they have no money saved for an emergency. Tuberculosis, as you all know, is an expensive disease, and particularly to patients whose income has never been even as much as sufficient. This also is the cause of lots of times of extended periods of treatment. These cases are worried about whether their family will be taken care of financially, they worry whether they will ever be able to return to work, and lots of times that extends their period of treatment

and adds to the public expense. Frequently that very reason willl cause a patient who has not yet reached a stage of quiescence to leave an institution and return home when he should not do so. This factor probably is not generally known. These figures vary from different sections of the United States and different sanatoriums, but twenty-five to sixty per cent of the cases discharged from the sanatorium as arrested are dead from tuberculosis within five years and the greater proportion are dead within two years. There is but one reason for that and that is that the follow-up is not effectual. There is no other disease that requires continuous medical supervision as much as a discharged tuberculosis case. The attempt is to rehabilitate him and put him back to work, but he cannot leave the sanatorium immediately and go to work. It is necessary that he be seen frequently and his work be prescribed just as medicines for illness are. That requires a considerable period of time and frequent examinations. It has been demonstrated that ninety-five per cent of the medically supervised cases are better at the end of a year, while less than sixty per cent of the unsupervised cases are as well. You will see that it is really not fair to your community for the authorities to spend a thousand to fifteen hundred dollars returning a case in an arrested condition and allow that thousand or fifteen hundred dollars to be lost through a lack of proper after care. This is one of the most important offices, in my opinion, of a tuberculosis clinic. That clinic should be associated, of course, with the welfare departments and also associated, if possible, with some form of employment agency where work can be furnished. The employment agency and the clinic can keep up with the physical condition of the patient so as to say the number of hours and length of time any certain patient can work. Not only that, but I think, as I have said, a tuberculosis clinic should be really an out-patient department of the sanatorium and that clinic should be in charge of some member of the staff of the sanatorium if there is such an institution in the county because a member of that staff is more familiar with the course of the treatment in these patients, as to how they are getting along, what has happened, and how much work they can stand, which is not always possible to tell by mere physical examination.

Just one other point I want to call attention to is this, one item of this program to my mind is the most important and that is the tuberculosis school clinic, and it is important for two reasons: First the early diagnosis campaign, selecting these children. The treatment of childhood tuberculosis is not difficult and progresses rapidly. Not only that, but the other reason is that this tuberculosis clinic can be used as a means of finding the adult type of open cases. My record shows less than fifty per cent of children give a history of contact. Now of course it is certain they have come in contact with open cases at sometime but their history will give you no help. These school clinics will help in finding these cases if properly followed up. You can locate the open cases through them and you can get them in greater numbers. It would be impossible to use a clinic just to test a few children. You wouldn't get many or get very far, but your school clinic is one where you can reach them in large numbers and is really the basis of our work and

where we will get best results. Of course these skin reactors, as I have said, certainly have been infected somewhere and the follow-up of these, with supervision of them, in many cases the active open cases can be located. Now this skin testing can be done without any outside aid. It requires not a great amount of medical skill and is not expensive and you all know the examination of children by chest means of stethescope is practically worthless in most cases. The X-ray is the only possible way to diagnose childhood tuberculosis, but even though the X-ray is not available why a lot of good work can be done by following these positive reactors because the reaction is specific and you know they have been infected and you know they are potential adult cases if not looked after. They should be followed and observed and contacts found. Every single adult case located can be sent somewhere for treatment or instructed as far as possible how to take care of himself and that means that much in the eventual result. There was a certain statement that seemed remarkable to me that I noticed in the last issue of *The Modern Hospital.* Agnes Memorial Sanatorium which has served tuberculosis patients thirty years will close its doors July first. What new purpose the institution will turn to is not stated. The rapid rate with which tuberculosis is being eradicated is the reason for the closing of the sanatorium. The hospital has an accommodation of 150 patients and is serving now forty-five. Now that may be the condition in Colorado, but I am afraid we are going to have needs for our clinics here for some years to come and I really believe the prevention of tuberculosis will add more dollars and cents actual value to the health of a community and its physical assets and its prevention than any other. I thank you. (Applause).

Dr. P. P. McCain (Sanatorium): I think this subject has been emphasized wonderfully well by the other doctors and our time is getting short as the next general session will soon begin. I do want to emphasize the fact still further that we can not depend upon finding the tuberculous patient by the usual methods we have heretofore relied upon. The study of over nine thousand cases admitted in the States of the South for the last two years shows only twelve per cent of the patients were in the early stages of the disease, and we all know that it is only in the early stages of the disease that tuberculosis can be cured; so if we do not find some method of finding these cases in their early stages we are not going to be able to prevent them from conveying the disease to other people. Forty-two per cent were moderately advanced and forty-six per cent far advanced. Through such methods of coöperation of all concerned, with the particular study of contacts and large groups of people such as found in schools and colleges and large industrial groups, only can we hope to progress in this work. We find people in the early stages of tuberculosis who don't look or feel sick but they are potentially dangerous people who could and should be cured. (Applause)

Dr. Spruill (Guilford County Sanatorium): I want to impress as much as I can upon you the remarks made by Dr. Donnelly. He is an Irishman and goes right at the thing somewhat roughshod sometimes but he is absolutely correct. He said that it was his experience that

fifty per cent of the arrested cases die after being discharged from Sanatoria within five years. Mr. President, that is one situation that we don't know what to do with. The health officer will tell you tuberculosis is largely a disease of the poor; limited to the working man and working woman. Now, give me a man or woman in the higher walks of life for treatment in the Sanatorium an incipient or moderately advanced case of the disease and within eight to ten months I will have his case arrested in almost every instance; then he is in shape to choose his vocation. He can go out and get an easy job where he can work a few hours and rest the balance of the day. That man, in all probability, will remain well. He will get along all right; but Dr. Donnelly's experience is the same as mine in the cases we get. All but about ten per cent come from the factories and the various occupations where it means a strenuous ten hours a day; maybe more. Where the family is dependent upon him for a living; he is the bread winner and is not only worried physically day in and day out but he is mentally worried with the little youngsters crying for bread. That man, Dr. Donnelly, is going to die of tuberculosis in spite of the devil regardless of what you can do. I don't know, and I believe I know about as much about it as anybody else, what is to be done. As long as the present financial status remains it is going to remain bad and grow worse. It sounds mighty nice for us folks to give statistics showing how our mortality rate has been dropping almost from fifty to a hundred per cent. It has dropped fifty to a hundred per cent over a period of twenty years but how about the last two or three years, Donnelly, and Yoder? What has North Carolina done during this period of depression when men and women can not get the things they actually need? We are up against a serious problem in spite of the fact that Guilford County has three as fine health officers as there are in the State who will back me to the last inch. We don't know what to do with this situation. We don't know, Gentlemen. I wish I was in shape to talk longer but I have been on the sick list for a week; but there is another phase of this that has not been discussed very much this morning. I sometimes wonder if in our work, certain branches of it, we have not gotten the cart before the horse. Mr. President, we are tearing our shirts, so to speak, expending our energy and money; all we can get toward the treatment and taking care of tuberculous children; the undernourished little fellow who reacts to the tuberculin test. That is all right. I don't know of anything I get more real joy from than taking care of my little youngsters. We have from thirty to thirty-five all the time, and just to take those poor little undernourished, half-starved fellows and give them nothing but just something to eat and a little cod liver oil and see them come across! It takes but three or four or five months to make of him a new child and bring him up to his normal weight and make him vigorous and strong. Then what? We must send him back to the same place whence we got him; to the same source of infection; to the same grandmother or grandfather who have probably had the disease for years and years and coughing and expectorating billions of germs every day; send him back to the same home of starvation; where there is nothing to eat or no discipline or any facility for taking care of him. Then what? We have been running

three or four years and now they are coming back. Why is that? I don't believe we have got to the bottom of this proposition and until you can take this source of infection out of the home and put him where he belongs and care for him properly we will never get very far. You have to go to the root of this evil. You have got to get the seed out. We can't take these far advanced cases because we do not have room for them. It is common sense that of two patients applying and with but one bed—one of those patients who can probably be cured while nothing can be done for the other—that we should take in the one who may be cured. What are we going to do with the other? Did you ever see anything written about that fellow in the tuberculosis journals? Not much. Nobody cares for him, and yet the man goes about scattering the seed of the disease. I am convinced if fifteen years ago we had spent as much time and effort taking care of that class of folks, Mr. President, we would not have need of sanatoriums throughout the State because that situation would have taken care of itself. I thank you. (Applause)

. . . The Section then adjourned. . . .

WOMEN'S AUXILIARY

OFFICERS 1931-1932

President—Mrs. R. S. McGeachy.....Greenville
President-Elect—Mrs. G. C. Beard.....Atkinson
First Vice-President—Mrs. W. B. Murphy.....Snow Hill
Second Vice-President—Mrs. J. F. Robertson.....Wilmington
Third Vice-President—Mrs. Foy Roberson.....Durham
Treasurer—Mrs. A. B. Holmes.....Fairmont
Recording Secretary—Mrs. P. P. McCain.....Sanatorium
Corresponding Secretary—Mrs. K. B. Pace.....Greenville

COUNCILLORS

First District—
Second District—Mrs. W. I. Wooten.....Greenville
Third District—Mrs. J. C. Wessell.....Wilmington
Fourth District—Mrs. Malcolm E. Bizzell.....Goldsboro
Fifth District—Mrs. O. L. McFadyen.....Fayetteville
Sixth District—Mrs. G. H. Macon.....Warrenton
Seventh District—
Eighth District—Mrs. A. D. Ownbey.....Greensboro
Ninth District—Mrs. B. W. McKenzie.....Salisbury
Tenth District—Mrs. A. G. T. Hipps.....Asheville

OFFICERS FOR 1932-1933

President—Mrs. W. P. Knight.....Greensboro
First Vice-President—Mrs. R. S. McGeachy.....Greenville
Second Vice-President—Mrs. R. E. Brooks.....Burlington
Third Vice-President—Mrs. J. M. Parrott.....Kinston
Treasurer—Mrs. A. B. Holmes.....Fairmont
Recording Secretary—Mrs. P. P. McCain.....Sanatorium
Corresponding Secretary—Mrs. D. W. Holt.....Greensboro

COUNCILLORS

First District—
Second District—Mrs. W. I. Wooten.....Greenville
Third District—Mrs. J. C. Wessell.....Wilmington
Fourth District—Mrs. Malcolm Bizzell.....Goldsboro
Fifth District—Mrs. O. L. McFadyen.....Fayetteville
Sixth District—Mrs. G. H. Macon.....Warrenton
Seventh District—
Eighth District—Mrs. A. D. Ownbey.....Greensboro
Ninth District—Mrs. B. W. McKenzie.....Salisbury
Tenth District—Mrs. B. L. Ashworth.....Marion

ADVISORY COMMITTEE FROM MEDICAL SOCIETY

Dr. J. B. Sidbury.....Wilmington
Dr. W. T. Rainey.....Fayetteville
Dr. Alonzo Myers.....Charlotte

PAST PRESIDENTS

1923—(Organizing Chairman) Mrs. P. P. McCain.....Sanatorium
1924—Mrs. P. P. McCain.....Sanatorium
1925—Mrs. I. W. Faison.....Charlotte
1926—Mrs. J. Howell Way.....Waynesville
1927—Mrs. R. S. McGeachy.....Kinston
1928—Mrs. Ben. J. Lawrence.....Raleigh
1929—Mrs. A. B. Holmes.....Fairmont
1930—Mrs. J. H. Macom.....Warrenton
1931—Mrs. W. B. Murphy.....Snow Hill
1932—Mrs. R. S. McGeachy.....Greenville

COMMITTEE ON ARRANGEMENTS

Mrs. A. deT. Valk, *Chairman*
Mrs. T. W. Davis
Mrs. R. W. Spicer
Mrs. E. A. Lockett
Mrs. E. P. Gray
Mrs. W. O. Spencer
Mrs. S. W. Hurdle
Mrs. J. P. Rousseau

PROGRAM

Tuesday, April 19

11:00 a.m.—Meeting of Executive Board.
2:00 p.m.—Annual Meeting.
4:00-6:00 p.m.—Tea at City Memorial Hospital.
Hostess: Mrs. Whittington

Wednesday, April 20

11:00 a.m.—Bridge—Country Club.
1:00 p.m.—Luncheon—Country Club.
2:00 p.m.—Tour of City—Visits to Private Gardens.

PROGRAM—ANNUAL MEETING

Invocation—Rev. R. E. Gribbin, Protestant Episcopal Church.
Address of Welcome—Mrs. E. A. Lockett, Winston-Salem.
Response to Welcome—Mrs. J. B. Sidbury, Wilmington.
Minutes—Dispensed with (Transactions of Medical Society 1931).
Roll Call—Dispensed with (Transactions of Medical Society 1931).
Address of President.

PRESIDENT'S REPORT

By Mrs. R. S. McGeachy, Greenville

Some one has said "The glory of life here below comes not from what we do or what we know, but dwells forever in what we are." You, the wives of the physicians of North Carolina have proven what you are and that you are capable of accomplishing whatever you undertake no matter how difficult it is.

In the years past the doctor's wife has truly not only been his aid, but was often his office girl, telephone operator and also was his business manager for the home. Today the doctor's work is done almost entirely through the office—he usually has a secretary or office nurse and thus the wife has more time for outside work and she can act as a "go-between" the layman and the doctor. She can give great help in health programs in other organizations as well as in our Auxiliary, always of course under the supervision and the advice of our excellent physicians.

From the report of the Councillors, I feel that we all realize the importance of the great work and objectives of the Auxiliary—we have done good work in the past but we expect to do even greater things in the future.

It has been said that "Child Welfare is the nation's problem" and as we are a part of the nation, it is our problem. Our great work is trying to help to cure the sick bodies of little children, realizing that a healthy child of today makes a healthy citizen of to-morrow. Without health the state and the nation becomes weak, discontented, but with the up-building of health the whole nation is stronger, more contented and the work accomplished is increased a hundred-fold. The little child who has occupied the Auxiliary bed at the State Sanatorium for Tuberculosis is now able to leave the institution—thus we are sending her home able once more to be a pleasure and a comfort to her relatives and also to be of use in this busy world.

We have also a Student Loan Fund which will in time help physicians' children to secure an education in whatever profession they may choose.

The Auxiliary is not alone philanthropic and educational, but it is also social for by social contact we exchange ideas, experiences and learn to know and understand each other better—it is personal contact which adds much to the interest and growth of an organization.

It has been indeed a pleasure to serve you as president the past year and I deeply regret that I have not been able to accept all invitations so graciously extended to me. There have been four (4) Executive Board meetings, I have attended two (2) district meetings, visited or contacted seven (7) local auxiliaries, have issued seven (7) bulletins. I found that the bulletins were of great value to the local auxiliaries as by this means they were kept in close touch with the State and National work. Three auxiliaries have been organized, Halifax-Northampton, Montgomery, and Mecklenburg—the membership has increased very much—we now have 347 members. This year we have succeeded in securing space in the Tri-State Medical Journal, Southern Medicine and Surgery, and through the kindness of the editor, we have had monthly

reports in the magazine—thus giving the work of the Auxiliary much publicity.

You have by your many letters and kindnesses encouraged me and this has been a happy year for me, one which will be outstanding in the "Book of Memory." May the aims and purposes of the Auxiliary ever be greater and the work continue to grow.

"Today, well lived makes
Every yesterday a dream of happiness
And every tomorrow a dream of hope."

TREASURER'S REPORT

RECEIPTS

Balance April 21, 1931	$ 73.25*	
365 members	365.00	
Donation bed, Cumberland County Auxiliary	7.45	
Donation bed, New Hanover County Auxiliary	44.00	
Donation bed, Duplin County Auxiliary	13.55	
Donation bed, Rowan County Auxiliary	11.50	
Donation envelopes	.50	
Prize, Mrs. P. P. McCain, Sanatorium	5.00	
Prize, Mrs. R. S. McGeachy, Greenville	5.00	
		$525.25

DISBURSEMENTS

Cards, Rouse Printery	$ 3.50	
Envelopes and paper, Rouse Printery	8.00	
Envelopes, Rouse Printery	2.50	
Postage, Mrs. Holmes	6.00	
Postage, Mrs. McGeachy	3.00	
American Medical Association, membership dues	67.50	
North Carolina Sanatorium, bed	344.33†	434.83
Balance		$ 90.42

LOAN FUND

May 21, 1931	$657.25
April 14, 1932, interest 4%	23.55
Dr. J. M. Parrott, Raleigh	1.00
Alamance-Caswell Auxiliary	30.05
Guilford County Auxiliary	42.00
Mrs. J. L. Sowers, Lexington	1.00
Mrs. J. F. Robertson, Wilmington, prize	5.00
Total	$759.85

MRS. A. BYRON HOLMES, *Treasurer.*

* Last year's balance carried dues two members this year.
† June 1st, 1931 to April 1st, 1932.

REPORT OF COUNCILLORS

FIRST DISTRICT

No report.

SECOND DISTRICT

Mrs. W. I. Wooten, Greenville

The work that has been accomplished in the Second District this year seems very little, especially in view of the fact that we are fortunate enough to have both the President and the Corresponding Secretary as members of our District. There are organized Auxiliaries in Kinston, Washington, and Greenville but I have not been able to get a reply from letters written to either of the first two named. The Pitt Auxiliary has seven paid members. We do not attempt to have any regular meetings. I have attended the two Executive meetings in Raleigh and Sanatorium.

THIRD DISTRICT

Mrs. J. C. Wessell, Wilmington

The first meeting in the District was held in May, in Clinton, Sampson County, at The Rufus King Hotel with a good attendance. Mrs. J. M. Lee of Newton Grove was elected President. On December 3rd. The Sampson Medical Society met at Pineland College and entertained the Auxiliary, having a ladies night program. The Auxiliary held a business meeting afterwards. In February it met with Mrs. Paul Crumpler in Clinton, Mrs. J. C. Wessell, Councillor, was the principal speaker. Mrs. J. B. Sidbury, Wilmington, and Mrs. G. C. Beard, Atkinson were also present. Mrs. Beard stressed Health Education Programs. The Auxiliary decided to ask their County Health Department physician to talk to them at their next meeting.

New Hanover, Pender, and Brunswick counties, consolidated. held their first meeting in July with Mrs. J. B. Sidbury in Wilmington. Mrs. A. H. Elliot, Wilmington, was elected President, Mrs. John Hamilton having moved away. Mrs. David Murchison was chosen President-elect. The Third District Medical Society held its meeting at Carolina Beach in July. This Auxiliary invited the other ladies from the District for a meeting at the same time and place. After a short business session a bridge party was enjoyed. A benefit bridge party was given in Wilmington in October and the proceeds sent to the bed at Sanatorium.

The Duplin County Auxiliary met with Mrs. J. D. Robinson, Wallace, in a luncheon meeting. Mrs. Robinson was elected President. This Auxiliary also gave a bridge benefit for the Sanatorium bed.

Mrs. J. P. Henderson, Jacksonville, is Chairman of Onslow County and has collected nearly 100% dues. The members, living so far apart has made it inconvenient for a meeting.

Mrs. D. H. Bridger, Bladenboro, Chairman of Bladen County, has collected dues but has held no meetings.

Columbus County is still unorganized.

SUMMARY

New Hanover, Pender, Brunswick counties—Dues for year 100%, $34.00. Cash for bed, $44.00.

Sampson County—Dues, $6.00.
Duplin County—Dues, $6.00. Bed, $13.55.
Onslow County—Dues, $4.00.
Bladen County—Dues, $1.00.
Total Dues, $51.00.
Total Bed, $57.55.
Grand Total, $108.55.

FOURTH DISTRICT

Mrs. Malcolm Bizzell, Goldsboro

FIFTH DISTRICT

Mrs. O. L. McFadyen, Fayetteville

There are four organized county medical auxiliaries in the Fifth District.

Cumberland Auxiliary: Cumberland has thirty members on roll with twenty-one paid up members. They have held six meetings during the year, and twenty-one members have attended the two district meetings. Besides paying their regular dues they have contributed $7.45 towards upkeep of the bed at Sanatorium. A Christmas box was sent to little Daisy Andrews at the Sanatorium. $8.75 was paid to health work in one of the Fayetteville city schools. Cumberland Auxiliary has a regular income from profits derived from dinners served to the Cumberland Medical Society. Officers of this auxiliary are: Mrs. L. L. Williams, Fayetteville, President; Mrs. J. A. Johnson, Fort Bragg, Secretary; Mrs. W. P. McKay, Fayetteville, Treasurer.

Hoke Auxiliary: 100% membership. Has had three meetings. Has helped in milk campaign. Has kept a chiropractor from addressing county schools. Helped in summer round-up campaign. Mrs. G. W. Brown, Raeford, President.

Robeson Auxiliary: Number of paid up members 17, have held four meetings during the year, with an increase in membership of two. This auxiliary has inaugurated an educational feature along medical and health lines, as part of their program at each meeting. Officers are: Mrs. H. T. Pope, Lumberton, President; Mrs. A. B. Holmes, Fairmont, Hygeia Chairman; Mrs. R. D. McMillan, Red Springs, County Chairman Public Relations; Mrs. H. M. Baker, Lumberton, Program Committee; Mrs. J. O. McClelland, Maxton, Program Committee.

Montgomery Auxiliary: This auxiliary held their organization meeting on April 7, and elected the following officers: Mrs. J. M. McMillan, Candor, President; Mrs. W. T. Harris, Troy, Secretary and Treasurer.

SIXTH DISTRICT

Mrs. G. H. Macon, Warrenton

No new counties were organized during the year. I am sure that some of the counties in this district have done good work but have failed to send in a report to me. Burlington does report regular meetings and interesting programs. I have sent out letters urging members to pay their dues and extending an invitation from the doctors' wives of Winston-Salem, sent me by Mrs. A. deT. Valk.

SEVENTH DISTRICT

No report.

EIGHTH DISTRICT

Mrs. A. D. Ownbey, Greensboro

The report which I have to offer is not as satisfactory as I would like to have been able to make, but due to circumstances over which I have had no control I have not been able to accomplish what I had expected.

The Eighth District has only one active auxiliary, the Guilford County Auxiliary. This organization has met each quarter at the same time that the county medical society has met. At each meeting we have had a Dutch supper and an after-dinner speaker. Last July we had a social meeting with dinner at the Sedgefield Inn and a dance and bridge party following the dinner, which was a very enjoyable affair.

The Guilford Auxiliary decided not to have any benefit parties this year but each member paid fifty cents in addition to the dues of one dollar. This auxiliary has 39 members who have paid their dues. During the year 5 new members have been added to the roll. The auxiliary has a contribution of $42.00 to make to the student loan fund.

An effort was made to get an auxiliary organized in Rockingham County and Forsyth County but for some reason or other I have not been able to get the ladies interested. I don't believe the doctors' wives of those counties know what they are missing and I sincerely hope that they will see fit to organize next year.

Some effort was made to secure subscriptions to the *Hygeia Magazine* but the result was not satisfactory and we have not become discouraged but will make a greater effort next year and hope to be able to report that we have secured a large number of subscriptions to the magazine because we believe in its worthiness.

NINTH DISTRICT

Mrs. B. W. McKenzie, Salisbury

There are only two counties organized in the Ninth District, Rowan and Davidson. Being unable to go personally, I have written twice to each of the twelve counties in the district, with the urgent appeal that they organize—telling them of the splendid work being done in the state

and the good work possible in their localities through an active organization. So far I have not heard from a single doctor's wife, though the letters written to the secretaries of the county medical societies were promptly answered (the latter were written to for names).

As requested by the state treasurer, Mrs. Holmes, letters were written those who had not paid dues in Davidson County, and the attention of the treasurer of Rowan County Auxiliary was called to its delinquent members, with the request that she call their attention to the matter.

Davidson County, Mrs. J. R. Terry, president. No report.

Rowan County, Mrs. Frank Ellis, president, Salisbury; Mrs. Slate, Spencer, vice-president; Mrs. W. L. Tatum, Salisbury, treasurer; Mrs. L. H. Robertson, secretary. A luncheon was given for the graduating class of the Salisbury Hospital and for the doctor's wives of the county, in May, at the cost of thirty-six dollars; flowers have been sent to a sick doctor, and a magazine subscription to a member at Oteen. Through the sale of rose bushes $11.50 was realized for the bed at Sanatorium, N. C. A tea was given for the doctor's wives of Salisbury and the county during the year. No contribution was made to the loan fund this year, however, the auxiliary is deeply interested in it, and we hope next year to do something for this splendid work. Rowan County has thirteen paid members.

TENTH DISTRICT

Mrs. A. T. Hipps

Buncombe County—Mrs. J. W. Huston, president. Thirty members. At the July meeting Mrs. J. M. Browner, Atlanta, spoke on the work the auxiliary could do. In January Dr. La Bruce Ward spoke on local health conditions. In February the auxiliary gave a tea, after the meeting, for the State President, Mrs. R. S. McGeachy. Mrs. McGeachy gave an interesting talk on the possibilities of the auxiliary. In March Dr. M. L. Stevens gave a talk on the history of the auxiliary.

Cherokee County—Mrs. J. N. Hill, president, sent in no report.

REPORT OF COMMITTEES

REPORT OF PUBLIC RELATIONS CHAIRMAN

Mrs. (J. O.) Lena Marshall McClelland

Your Chairman of Public Relations wrote letters to the twenty-five presidents of County Auxiliaries which were listed in the "1931 Transactions of the Medical Society of North Carolina," and requested each of them to appoint a Public Relations Chairman in her county.

Replies were received from thirteen of them; four reported that their auxiliaries were inactive; nine sent the names of the Public Relations Chairmen who had been appointed.

To these nine women your chairman has sent the Study Programs accompanied by a letter which gave a full outline of the duties and possibilities of the office. Particularly did she stress the importance of planning a regular program of study in each auxiliary.

Literature from the auxiliary to the A. M. A. has been given to several schools, and to various organizations of women in the State, requesting them to use it in their health programs.

Weekly health talks are being published in two local papers, and an effort has been made to sponsor a series of Radio Health Talks, as suggested by the auxiliary to the A. M. A.

Upon investigation your chairman finds that the State Board of Health for more than two years has been given a fifteen-minute talk over WPTF every Saturday at 2:15 p.m. To put on another series would be a duplication of effort.

Both Dr. Cooper and Dr. Parrott say that we women of the auxiliary can greatly increase the usefulness of these programs by listening in ourselves, and by asking all of our friends to listen in and give as wide publicity as possible to the health facts which are given.

Dr. Parrott asks for our very hearty coöperation in helping to make the state-wide immunization campaign against diphtheria, typhoid fever and smallpox a success.

He thinks we could help by using the literature on this subject from the State Board of Health and the auxiliary to the A. M. A.; by writing short articles and having them published in the local papers.

Your chairman appreciates the coöperation which has been given to her in her effort to get this work started, and bespeaks the same for her successor.

REPORT OF COURTESY COMMITTEE

Mrs. J. A. Keiger, Greensboro

ADDRESS BY PRESIDENT OF STATE MEDICAL SOCIETY

Dr. M. L. Stevens

OUR CHILD

Thinking persons will readily concede that the physician's wife is an important factor in his success or his failure in his profession—

that through her inspiration and help many a doctor of mediocre ability is changed into the outstanding and successful practitioner of his community, and that occasionally a doctor with exceptional qualifications is unable to attain eminence because of the faulty team work or lack of team work of his wife.

This influence of the doctors' wives individually upon the work of the doctors individually has been exerted for ages. But a few years ago in Texas the doctors' wives collectively undertook the task of aiding the medical profession in that state in bringing about some of the things needful for promoting the health and welfare of the people. The success of this effort was such that the wife of one of those doctors proposed the organization of the Woman's Auxiliary of the A. M. A. with a component state organization in each state. Many of the members of the A. M. A. heard of the expected birth of this new organization without rejoicing. They felt that there were already too many medical and allied associations and that each doctor's wife had a sufficient field for helpfulness in connection with the work of her husband. One member even expressed himself as thinking that the organization most needed was a society for the prevention of more organizations. But the babe was born and although its arrival was not welcomed by all of the A. M. A. family, the doctors' wives have nursed and mothered it through a precarious infancy and childhood until now at the age of ten it is growing steadily and nearing that period when it should blossom forth into maturity and capability and ambition to make its helpfulness so felt that those, if any, who still think of it as your child, will proudly and possessively want to speak of it as ours. I confess such an interest in it myself. Because of this interest I am inclined while before you to suggest that a special program or course of study be undertaken to prepare this rapidly growing and maturing organization for the responsibilities of the life of usefulness and opportunity which it can be expected to assume. Naturally, you ask what qualifies me to advise you now to bring up your child. In reply I would say the same qualifications that prompt most persons who have no children of their own to tell those who have how to bring them up. So I am at least no more presumptuous than others have been.

The special program that I suggest for it would include the presentation and discussion of several addresses by capable members of this organization at each annual meeting. Of the many suitable subjects that suggest themselves to me one is, Supplemental Vows to be Taken by the Wife on Marrying a Physician. The physician you know is bound by the vow which Hippocrates, the Father of Medicine, required of those to whom he taught the healing art to take. A part of that vow is, "Whatsoever I see or hear in the lives of men that should not be spoken of abroad I will not divulge." For the wife the vow could be, "Whatsoever my husband sees or hears in the lives of others that should not be spoken of abroad I will not reveal." The physicians' vows also require him to look after the interests of his fellow practitioners the same as his own. This obligation too should be accepted by his wife. Another subject on which, insofar as I know, no one has ever written a line or delivered an address is, A Code of Ethics for Physicians' Wives.

This would furnish themes for a number of addresses such as, "The Physician's Wife in Relation to her Husband's Work and his Patients—In Relation to the Work and Ability of Other Doctors—In Relation to the Patients of Other Doctors—In Relation to Other Doctors' Wives, Etc." The material presented in these addresses and in the discussion of them could later be compiled as your Code of Ethics, and this could be offered by your delegates to the American Auxiliary for adoption as the Code of Ethics of that body.

Other subjects would do as well but the ones mentioned are sufficient to illustrate the idea that I am trying to convey to you, that for your annual meetings definite programs be arranged with addresses by members of your own organization on any of the many subjects of interest to a body of cultured thinking women in promoting the aims and the aspirations of our child the Woman's Auxiliary.

Of lines of endeavor in which the Local Auxiliaries, as well as the State Auxiliary, can render valiant service there are many.

Do you know that Fellows of our State Medical Society are all members of the A. M. A. but that 967 of them, more than half, are not Fellows of the Scientific Assembly of the A. M. A. and could not present a paper before that body or take part in the discussion of one?

Do you know whether your husband is a Fellow of the Scientific Assembly? And if he is not that he is entitled to Fellowship which costs him nothing except the regular subscription price to *The Journal,* the best medical periodical in the world, to which he should subscribe anyway?

Do you know there is opportunity in connection with the various Parent Teachers' Associations to work out plans whereby the health handicaps of pupils in the schools can be treated by local physicians instead of by physicians from other localities?

Do you know that the activities of those engaged in public health work in most of the counties of our state are hampered by politics and that politics should have no more place in our health work than in the work of our schools?

Do you know that our Federal Government at Washington, which we call a democracy, has departed from its old successful policy of individualism and self-help and leaving to the states the management of their own affairs and has become a political autocracy, that under the cloak of benevolent paternalism has created commissions and bureaus for the regulation of all enterprise and effort, each bureau providing salary to politicians at an expense to the people far beyond its worth to them? That these bureaus have increased ten fold since the beginning of the century? That government hospitals now admit free of charge any one who served in the army and who needs hospital treatment regardless of whether his disability was caused by such service and regardless of his financial condition? That while local hospitals in all communities are struggling against bankruptcy congress now in session has for consideration a proposal to increase its hospital facilities to nearly five times their present capacity and that if this is done it will eventually mean hospital care for all government employees?

Do you know the Sheppard-Towner Infancy and Maternity Act that operated seven and a half years under a bureau of the Department of Labor, spending millions and accomplishing little, and which because it was another step in the direction of state medicine the A. M. A. opposed and finally succeeded in having it repealed, is again before congress with probability of passing because it is supported by the Federations of Woman's Clubs all over the country and that they surely would not support it if they were fully informed as to its history and significance?

Do you know that the members of the auxiliary by their contacts with the ever widening circles of their civic, social and cultural clubs can carry the physician's influence farther into the various channels of society than he possibly can?

I might go on asking questions the answers to which would suggest some of the many lines of endeavor along which the auxiliary can render inestimable service to our country, our state, our community and our households.

Now I would prefer to close my address here, wishing you the speedy and full consummation of the aims and purposes for which your organization stands and assuring you of my confidence in your ability to do well what you have set out to do. But my interest in this organization and my belief that you will credit me with good intent, if not good judgment, impels me to say more.

Many of the State Auxiliaries have not as yet seriously accepted their opportunities. They meet once a year, do a few unimportant things and elect officers.

The State Auxiliaries that are accomplishing most are the ones that have delegates present at every annual meeting of the American Auxiliary. These delegates see the work that is done there, hear the reports of the activities of the various State Auxiliaries, and go back to their home organizations with new ideas and plans and zeal for their execution.

In the eight years since this auxiliary was organized not more than two of the various delegates which you have elected to represent you at the national meetings have attended those meetings as delegates.

The A. M. A. Woman's Auxiliary will meet in New Orleans next month in connection with the American Medical Association. A number of doctors from this state will attend that meeting and their wives should go with them. Choose your delegates from among those who can be depended upon to go. And if by mistake some one who cannot go to that meeting is nominated as a delegate, let her make it known before the balloting in order that she may not be embarrassed by accepting the honor of an office without fulfilling the duties incumbent upon that office.

Regardless of what your reaction may be to the things I have said, whether you find the suggestions made wise or otherwise, I would like you to believe that my desire has been to aid in directing the auxiliary, our child, on a course of usefulness such as will give exercise for the abundant capability and talent it possesses.

ADDRESS

Dr. E. Starr Judd
President of American Medical Association

Dr. Judd brought greetings from the American Medical Association. He suggested, among other things, that auxiliaries might do: First—Get subscriptions to *Hygeia* as it is a splendid way to help educate the laity. Second—Help educate the general public that experimentation with animals is not a cruel thing but a necessary thing if research shall continue.

ADDRESS

Mrs. Walter Jackson Freeman
President Elect Auxiliary to American Medical Association

Mrs. Jackson, in a most charming and "folksy" way, conveyed a decided feeling of confidence to her hearers, in her brilliant plea that the auxiliaries to the American Medical Society become the liaison officer between the medical profession and the public; and that the members through their contact with the public through other organizations to which they belong, uphold the dignity of the profession and realize that they have an opportunity to give authentic genuine information to the public, and thus oftentimes prevent quacks and fakirs from playing on the credulity of the public under the guise of the medical profession.

She stressed the ability of the women of the Auxiliary through their affiliation with the doctors to interpret the medical profession to the public, so that when a question arises within any organization concerning public welfare and health, etc., the ground may be found already prepared for the reception of that which is good and for the discard of that which is bad.

Mrs. Freeman spoke as one with authority, since she has attained her high office because of her deep understanding of the needs and service of the auxiliary, indeed such a service as she will without doubt render her organization is in part bred in the bone for she is the distinguished daughter of no less distinguished father, Dr. W. W. Keene, for a long period of time a member of the faculty of the Jefferson Medical College of Philadelphia, and one of the most noted physicians of the nation. She is also the wife of a distinguished physician and the mother of two young members of the medical profession.—Winston-Salem paper clipping.

Election of officers—Mrs. J. B. Sidbury, Chairman of Nominating Committee.

Awarding of prizes:

$5.00—Given by Mrs. J. F. Robertson, Wilmington, for largest donation to Loan Fund—to Guilford County Auxiliary.

$5.00—Offered by Mrs. R. S. McGeachy, Greenville, for largest increase in membership—to Asheville Auxiliary.

$5.00—offered by Mrs. P. P. McCain, Sanatorium, for largest contribution to Sanatorium Bed—to New Hanover-Pender-Brunswick Auxiliary.

Business: Adoption of changes to Constitution (Constitution printed in full at end of this section).

THE WOMAN'S AUXILIARY AS A COMMUNITY LEAVEN

By Mrs. Walter Jackson Freeman, Philadelphia
President-Elect of the Woman's Auxiliary to the American Medical Association, Editor of the Auxiliary Department in the American Medical Association Bulletin.

Unlike Topsy the Woman's Auxiliary did not "just grow." It is the natural development of the idea of *preventive* medicine, that new conception of professional obligation to the public. In the highly technical fields of medicine, healing the sick, laboratory research and teaching, the Auxiliary has no place, but as a liaison officer between the profession and the public its position is unique and unassailable. As physicians' wives we are familiar with the latest developments of medical thought from the moment of their inception to their public pronouncement, an advantage shared by no other group. On the other hand as members of the varied women's organizations spread like a net-work over the country, we are in a position to introduce into their well-meant, but often ill-advised, programs the leaven of authentic, authoritative health information.

The lay public has become distinctly health conscious, and women, with their sense of responsibility as mothers, their emotional response and their too frequent lack of sound information, are easy prey for the quack, the charlatan. An offer of a free lecture on diet is likely to be snapped up by a woman's club unless a physician's wife on the board has a chance to ask a few pertinent questions. "Who is this liberal benefactor? What degrees has he taken and where? On what does he base his claim to being a diet expert? What is his standing in the medical profession?" If his sponsors are limited to those whose names and faces adorn his literature, and if his system is recommended alike to sufferers from angina, arthritis, diabetes and flat feet, the Auxiliary member will have no difficulty in closing the club door before he has an opportunity to delude her friends with mis-information, and to lighten their purses by the sale of his infallible "Guide to Health via Food" at $3.50 a volume, cure guaranteed. There is no need to hurl invectives. Enough rope will insure a speedy suicide.

Preventive medicine has been likened by Dr. Olin West to building a wall along the edge of a precipice instead of sending an ambulance to the bottom. The medical societies and public health officials must mark the site, draw the design, select the materials and superintend the construction, but much of the actual work may safely be handed over to the Woman's Auxiliary. Suppose a campaign for diphtheria immunization is urgently needed. First comes distribution of one or two simple leaflets to Auxiliary members to make sure that they themselves are thoroughly informed on its necessity, its simplicity and its efficacy. They can then arrange for presentation of the subject by the doctors in the leading organizations of the community, followed by a public meeting with music, movies and good speakers. A prize essay contest in the

schools, the winners to read their essays and receive their awards at this meeting, would help in arousing parents' interest and securing an audience. Good press notices should accompany this preliminary campaign, and every member should constitute herself a special publicity agent, for success will depend largely on the efficacy of the Auxiliary grapevine.

The time and place for giving the treatment will naturally be decided by the doctors themselves, and here again the Auxiliary may be of great assistance in securing proper accommodations, arranging for assistants and supplies of material, possibly also in bringing mothers and children to the doctor, or in transporting doctors and nurses from place to place. The same procedure may be followed six months later with the Schick test, and once a good system has been inaugurated the Auxiliary will be prepared to assist semi-annually in the immunization and testing of each year's crop of new babies.

The point of all this is, that the medical authorities *direct* the entire campaign, deliver the authoritative health addresses and do the professional work, but are relieved of the burdensome detail of publicity and physical arrangements. These are taken over by the Auxiliary, whose members by their social connections, and through their affiliation with other influential organizations do their minor, but no less necessary, work in building the protecting wall at the brink of the precipice. The same principles apply to any subject the medical authorities desire to bring before the public, and the procedure is easily adaptable to fit any local conditions.

Active campaigns are not necessarily always carried on by the Auxiliary, but may be *suggested* and *directed* by Auxiliary members and carried on by other organizations. The brilliant campaign for periodic health examination now in progress by the Delaware Anti-Tuberculosis Society is a case in point. The Delaware Auxiliary was the moving spirit in this undertaking which is attracting wide attention, but the work of the campaign and all the expense are borne by the Anti-Tuberculosis Society.

Health education in the schools is another important field for the Auxiliary, and here the American Medical Association publications, the Study Envelopes prepared by the national Auxiliary and approved by the American Medical Association Advisory Committee, and above all *Hygeia* will prove invaluable. No other magazine carries such authentic, authoritative, up-to-date health information, told in such simple language and so attractively presented. Few school budgets include a *Hygeia* subscription and teachers should not be expected to subscribe themselves. One of the most valuable and far-reaching Auxiliary activities might well be the raising of money to place *Hygeia* in the schools of each county, particularly those remote from well-stocked libraries.

Beside this educational work, in which the Auxiliary reigns supreme, a wide variety of civic and philanthropic subjects engage our members' interest, either alone or in coöperation with other organizations. Weed eradication and cleaning up of vacant lots as a preventive of hay fever appeals to our Garden Clubs members, and collection of material for archives and for medical history and biographies to our members his-

torically minded. Clean streets and clean milk may be pushed through our Civic Clubs, studies of health laws and the degree of their enforcement through the League of Women Voters and other political organizations. More peculiarly our own are such objects as a medical benevolence fund like that of the Pennsylvania Medical Society, for the relief of aged and infirm physicians and their dependents, assistance in the purchase and furnishing of homes for the Medical Societies, or the binding cataloguing and care of their libraries. Student loan funds are thicker than huckleberries and work for hospitals and homes of all kinds may be taken for granted. To sum up, the Auxiliary acts as a sort of community yeast in all health matters, and might well take for its motto St. Paul's question to the Corinthians—"Know ye not that a little leaven leaveneth the whole lump?"

That the Medical Societies are now taking active cognizance of the possibilities of this leavening process is shown in a recent letter from Dr. William Gerry Morgan, past-president of the American Medical Association, who says: "Whenever the medical fraternity has held out a helping hand to the Woman's Auxiliary, they have been gratified to find that the work of the Auxiliary flowed along safe and helpful channels, and the results proved worth while. Personally, I consider the Woman's Auxiliary of real signal value, and can come to grow more useful all the time if we medical men will give them guidance and help and encouragement wherever it is possible."

Turning now from what we put into the Auxiliary to what we get out of it, a few outstanding facts appear. First is an increasing spirit of friendliness, not only among the doctors' wives but among the doctors themselves. Better acquaintance brings to light the finer qualities, often hidden or overlooked under the stress of daily duties, and occasional dinners and dances of the Auxiliary and the Medical Society often disclose unsuspected social qualities that add much to the pleasure of daily intercourse.

Active participation in Auxiliary work brings the women to the meetings of the Medical Societies, and often an interested wife is accountable for the presence of an indifferent or unwilling husband. Attendance of the Medical Society at state conventions in Pennsylvania has increased 20% since the founding of the Auxiliary, and the American Medical Association meeting in Philadelphia brought together more than 8,000 doctors and nearly 1,500 women, the largest attendance, I am told, in its history. At conventions the Auxiliary takes entire charge of visiting women, with an interesting and varied program, leaving the doctors free to attend the scientific sessions and make their professional contacts. The social events are improved by the feminine touches, and are more appreciated because husband and wife enjoy them together. In fact, the greatest value of the Auxiliary lies just here, in the closer bond it creates between husband and wife. Her work in the Auxiliary gives her better understanding of the duties and aspirations of his profession, less jealousy of its demands on his time and strength, and at the same time relieves him of much unnecessary drudgery. The doctors are quick to appreciate this sympathetic attitude, and increased mutual respect and understanding bring increased happiness into the family life.

Isn't it always true, that one gets out of life just what one puts into it?

(After much insistence, Mrs. Freeman has given permission for the printing of this article which she has delivered before other Auxiliaries. The President feels that many new members and Auxiliaries shall find many useful suggestions in this as well as Dr. Stevens's excellent address to the Assembly.)

ROSTER OF MEMBERS, 1931-1932

Adams, Mrs. C. A.....Durham
Adkins, Mrs. M. T.....Durham
Alexander, Mrs. J. R.....Charlotte
Algood, Mrs. R. A.....Fayetteville
Alyea, Mrs. E. P.....Durham
Ambler, Mrs. C. P.....Asheville
Anders, Mrs. McT. G.....Gastonia
Anderson, Mrs. C. A.....Burlington
Andrews, Mrs. E. D.....Salisbury
Armstrong, Mrs. C. W.....Salisbury
Ashcraft, Mrs. J. E.....Fayetteville
Ashworth, Mrs. B. L.....Marion
Ashworth, Mrs. W. C.....Greensboro
Baier, Mrs. G. T., Jr.....Asheville
Baker, Mrs. David.....Fayetteville
Baker, Mrs. H. M.....Lumberton
Banner, Mrs. C. W.....Greensboro
Barefoot, Mrs. G. B.....Wilmington
Basnight, Mrs. T. G.....Stokes
Bass, Mrs. H. H.....Durham
Beam, Mrs. R. S.....Lumberton
Beard, Mrs. G. C.....Atkinson
Beckwith, Mrs. R. P.....Rosemary
Bell, Mrs. F. O.....Burlington
Bellamy, Mrs. R. H.....Wilmington
Berry, Mrs. John .....Greensboro
Bethune, Mrs. A. C.....Sanatorium
Bittinger, Mrs. S. M.....Sanatorium
Bigler, Mrs. V. H.....Albemarle
Bizzell, Mrs. M. E.....Goldsboro
Black, Mrs. G. W.....Charlotte
Blackshear, Mrs. T. J.....Wilson
Blair, Mrs. Andrew .....Charlotte
Blair, Mrs. A. M.....Southern Pines
Blumberg, Mrs. Alfred .....Asheville
Bonner, Mrs. H. M.....Greenville
Booker, Mrs. L. S.....Durham
Boone, Mrs. Waldo.....Durham
Bowles, Mrs. F. N.....Durham
Bowman, Mrs. E. L.....Lumberton
Bowman, Mrs. H. E.....Aberdeen
Boyce, Mrs. J. H.....Greensboro
Brewer, Mrs. J. S.....Roseboro
Brewton, Mrs. W. A.....Asheville
Bridger, Mrs. D. H.....Bladenboro
Britt, Mrs. J. N.....Lumberton
Brockman, Mrs. H. T.....High Point
Brooks, Mrs. R. E.....Burlington
Brown, Mrs. G. W.....Raeford
Brown, Mrs. Kermit.....Asheville
Bryan, Mrs. L. D.....Snead's Ferry
Buie, Mrs. R. M.....Greensboro
Bulla, Mrs. A. C.....Raleigh
Bulluck, Mrs. E. S.....Wilmington
Burnett, Mrs. B. S.....Fort Bragg
Caldwell, Mrs. M. M.....Wilmington
Campbell, Mrs. A. C.....Raleigh
Carrington, Mrs. G. L.....Burlington
Carroll, Mrs. F. W.....Hookerton
Carroll, Mrs. J. W.....Wallace
Carlyle, Mrs. J. B.....Burlington
Casteen, Mrs. Kenan.....Leaksville
Coddington, Mrs. H. A.....Wilmington
Cole, Mrs. W. F.....Greensboro
Combs, Mrs. H. J.....Elizabeth City
Cooper, Mrs. G. M.....Raleigh
Corbett, Mrs. J. P.....Swansboro
Costner, Mrs. W. V.....Lincolnton
Cox, Mrs. E. L.....Jacksonville
Cranmer, Mrs. J. B.....Wilmington
Crisp, Mrs. S. M.....Greenville
Crouch, Mrs. A. M.....Wilmington
Crow, Mrs. S. L.....Asheville
Crowell, Mrs. L. A.....Lincolnton
Crumpler, Mrs. Paul.....Clinton
Currie, Mrs. S. D.....Parkton
Davis, Mrs. P. B.....High Point
Davison, Mrs. W. C.....Durham
Dingle, Mrs. W. P.....Fort Bragg
Dixon, Mrs. H. C.....Leaksville
Dixon, Mrs. G. G.....Ayden
Dixon, Mrs. W. H.....Rocky Mount
Dosher, Mrs. J. A.....Southport
Eagle, Mrs. Watt.....Durham

Eckel, Mrs. O. F.....Asheville
Edwards, Mrs. C. P.....Asheville
Eldridge, Mrs. C. P.....Raleigh
Ellington, Mrs. A. J.....Burlington
Elliott, Mrs. A. H.....Wilmington
Elliott, Mrs. J. A.....Charlotte
Elliott, Mrs. W. F.....Lincolnton
Ellis, Mrs. F. A.....Salisbury
Evans, Mrs. J. E.....Wilmington
Evans, Mrs. L. B.....Windsor
Faison, Mrs. I. W.....Charlotte
Farthing, Mrs. L. E.....Wilmington
Felts, Mrs. R. L.....Durham
Ferguson, Mrs. R. T.....Charlotte
Fields, Mrs. L. E.....Chapel Hill
Fitzgerald, Mrs. J. H.....Smithfield
Flagge, Mrs. P. W.....High Point
Freeman, Mrs. J. D.....Wilmington
Gage, Mrs. L. G.....Charlotte
Gallant, Mrs. R. W.....Charlotte
Gardner, Mrs. C. E., Jr.....Durham
Gibbon, Mrs. J. W.....Charlotte
Gibbon, Mrs. R. L.....Charlotte
Gilmore, Mrs. C. M.....Greensboro
Godwin, Mrs. G. C.....Asheville
Graham, Mrs. Edith.....Wilmington
Grantham, Mrs. W. L.....Asheville
Green, Mrs. T. M.....Wilmington
Greene, Mrs. J. B.....Asheville
Griffin, Mrs. H. L.....Star
Griffin, Mrs. W. R.....Asheville
Gwynn, Mrs. H. L.....Yanceyville
Hall, Mrs. J. S.....Wilmington
Harbison, Mrs. J. W.....Shelby
Hardin, Mrs. E. R.....Lumberton
Harris, Mrs. A. H.....Wilmington
Harris, Mrs. W. T.....Troy
Harrison, Mrs. E. T.....High Point
Hart, Mrs. V. K.....Charlotte
Harvey, Mrs. W. W.....Greensboro
Hayes, Mrs. A. H.....Fairmont
Hayes, Mrs. R. B.....Hillsboro
Hege, Mrs. J. R.....Winston-Salem
Henderson, Mrs. J. P.....Jacksonville
Hiatt, Mrs. H. B.....High Point
Hicks, Mrs. V. M.....Raleigh
Highsmith, Mrs. S.....Fayetteville
Hines, Mrs. E. R.....Rocky Mount
Hipp, Mrs. E. R.....Charlotte
Hipps, Mrs. A. T.....Asheville
Hocutt, Mrs. B. A.....Clayton
Hodge, Mrs. A. R.....Severn
Hoggard, Mrs. J. T.....Wilmington
Holmes, Mrs. A. B.....Fairmont
Holt, Mrs. D. W.....Greensboro
Hooker, Mrs. J. S.....Sanatorium
Hooper, Mrs. J. W.....Wilmington
Hovis, Mrs. L. W.....Charlotte
Howell, Mrs. W. H.....Ellerbee
Huffines, Mrs. T. R.....Asheville
Hunter, Mrs. J. P.....Cary
Huston, Mrs. J. W.....Asheville
Ivey, Mrs. R. R.....Asheville
Jackson, Mrs. W. L.....High Point
James, Mrs. W. D.....Hamlet
Jarman, Mrs. F. G.....Roanoke Rapids
Jennings, Mrs. C. W.....Greensboro
Jennings, Mrs. R. G.....Thomasville
Johnson, Mrs. A. H.....Greensboro
Johnson, Mrs. G. W.....Wilmington
Johnson, Mrs. J. A.....Fort Bragg
Johnson, Mrs. T. C.....Lumberton
Johnston, Mrs. Cris.....Durham
Jordan, Mrs. S. R.....Pleasant Garden
Judd, Mrs. E. C.....Raleigh
Judd, Mrs. J. M.....Varina
Justice, Mrs. W. S.....Asheville
Keiger, Mrs. J. A.....Greensboro
Kelly, Mrs. L. W.....Charlotte
Kenneday, Mrs. J. P.....Charlotte
Kerns, Mrs. T. C.....Durham
Kerr, Mrs. J. D.....Clinton
Ketchie, Mrs. J. M.....Salisbury
Knight, Mrs. W. P.....Greensboro
Knox, Mrs. John.....Lumberton
Koonce, Mrs. S. E.....Wilmington
Kornegay, Mrs. L. W....Rocky Mount
Kreg, Mrs. E. S.....Wake Forest
Kremer, Mrs. C. E., Jr.....Charlotte
Kutscher, Mrs. G. W.....Asheville
Lackey, Mrs. F. H.....Falston
Lassiter, Mrs. H. G.....Weldon
Laughinghouse, Mrs. C. O'H., Greenville
Lawrence, Mrs. B. J.....Raleigh
Lee, Mrs. J. M.....Newton Grove
London, Mrs. E. H., Jr.....Durham
Long, Mrs. E. F.....High Point
Long, Mrs. T. W. M...Roanoke Rapids
Looney, Mrs. J. J.....Rocky Mount
Lott, Mrs. C. W.....Asheville
Lucas, Mrs. P. E.....Burgaw
Macon, Mrs. G. H.....Warrenton

Malloy, Mrs. S. A.....Yanceyville
Maness, Mrs. E. K.....Greensboro
Mann, Mrs. I. T.....High Point
Marsh, Mrs. J. H.....Fayetteville
Martin, Mrs. J. A.....Lumberton
Martin, Mrs. W. F.....Charlotte
Matheson, Mrs. R. A.....Raeford
Matthews, Mrs. V. M.....Charlotte
Matthews, Mrs. W. W.....Leaksville
Mebane, Mrs. W. C.....Wilmington
Mitchener, Mrs. J. S.....Raleigh
Montcure, Mrs. W. M.....Salisbury
Montgomery, Mrs. H. M....Burlington
Montgomery, Mrs. K. E.....Asheville
Moore, Mrs. A. W.....Charlotte
Moore, Mrs. H.....Wilmington
Moore, Mrs. J. A.....Asheville
Murchison, Mrs. D. R.....Wilmington
Murphy, Mrs. G. W.....Asheville
Murphy, Mrs. J. G.....Wilmington
Murphy, Mrs. W. B.....Snow Hill
Murray, Mrs. R. L.....Raeford
Myers, Mrs. Alonzo.....Charlotte
McAnnally, Mrs. J. M.....High Point
McBane, Mrs. T. W.....Pittsboro
McCain, Mrs. P. P.....Sanatorium
McCain, Mrs. W. K.....High Point
McCain, Mrs. W. R.....High Point
McClelland, Mrs. J. O.....Maxton
McCoy, Mrs. T. M.....Charlotte
McCutcheon, Mrs. W. B.....Durham
McDaniel, Mrs. L. E.....Jackson
McFadyen, Mrs. O. L.....Fayetteville
McGeachy, Mrs. R. S.....Greenville
McGee, Mrs. J. W.....Raleigh
McGehee, Mrs. J. W.....Reidsville
McIntyre, Mrs. S., Jr.....Lumberton
McKay, Mrs. H. W.....Charlotte
McKay, Mrs. W. P.....Fayetteville
McKay, Mrs. R. W.....Charlotte
McKenzie, Mrs. B. W.....Salisbury
McKnight, Mrs. R. B.....Charlotte
McMillan, Mrs. J. M.....Candor
McMillan, Mrs. R. D.....Red Springs
McPherson, Mrs. C. W.....Burlington
McPherson, Mrs. S. D.....Durham
Nalle, Mrs. B. C.....Charlotte
Nance, Mrs. C. L.....Charlotte
Neese, Mrs. K. L.....Greensboro
Nesbit, Mrs. C. T.....Wilmington
Newman, Mrs. H. H.....Salisbury
Newton, Mrs. H. L.....Charlotte
Nowlin, Mrs. P.....Charlotte
Olive, Mrs. P. W.....Fayetteville
Oliver, Mrs. A. S.....Raleigh
Orr, Mrs. C. C.....Asheville
Ownbey, Mrs. A. D.....Greensboro
Pace, Mrs. K. B.....Greenville
Parker, Mrs. O. L.....Clinton
Patterson, Mrs. F. M.....Greenville
Patterson, Mrs. Reid.....Charlotte
Peeler, Mrs. C. N.....Charlotte
Perry, Mrs. D. R.....Durham
Person, Mrs. J. B.....Selma
Perlzwig, Mrs. O. M.....Durham
Petrie, Mrs. R. W.....Lenoir
Phillips, Mrs. C. H.....Thomasville
Phillips, Mrs. C. P.....Charlotte
Pierce, Mrs. S. B.....Weldon
Pittman, Mrs. R. L.....Fayetteville
Pope, Mrs. H. T.....Lumberton
Powell, Mrs. A. H.....Durham
Powers, Mrs. F.....Wilmington
Pruss, Mrs. H.....Durham
Rankin, Mrs. W. S.....Charlotte
Ranson, Mrs. J. L.....Charlotte
Ravenel, Mrs. S. S.....Greensboro
Ray, Mrs. J. B.....Leaksville
Ray, Mrs. S. P.....Leaksville
Ray, Mrs. F. L.....Charlotte
Reaves, Mrs. C. R.....Greensboro
Reaves, Mrs. J. L.....Canton
Reed, Mrs. D. H.....Maxton
Reeves, Mrs. A. F.....Asheville
Register, Mrs. F. M.....Raleigh
Reitzel, Mrs. C. E.....High Point
Rhudy, Mrs. B. E.....Greensboro
Roberson, Mrs. Foy.....Durham
Robertson, Mrs. J. F.....Wilmington
Robertson, Mrs. L. H.....Salisbury
Robinson, Mrs. D. E.....Burlington
Robinson, Mrs. J. D.....Wallace
Ross, Mrs. G. H.....Durham
Rosser, Mrs. R. D.....Vass
Ruark, Mrs. M. H.....Wilmington
Royster, Mrs. T. H....Roanoke Rapids
Russel, Mrs. M. W.....Asheville
Sasser, Mrs. T. J.....Charlotte
Schaffle, Mrs. Carl .....Asheville
Schoonover, Mrs. R. A.....Greensboro
Scruggs, Mrs. W. M.....Charlotte
Seawell, Mrs. M. H.....Jackson

Seay, Mrs. T. W.....East Spencer
Sessoms, Mrs. E. T.....Roseboro
Shands, Mrs. A. R., Jr.....Durham
Shamburger, Mrs. J. B.....Star
Sharpe, Mrs. C. R.....Lexington
Sharpe, Mrs. F. A.....Greensboro
Shaw, Mrs. Colin.....Atkinson
Shelburne, Mrs. P. A.....Greensboro
Shower, Mrs. W. T.....Albemarle
Shuler, Mrs. J. E.....Durham
Sidbury, Mrs. J. B.....Wilmington
Sisk, Mrs. C. N.....Rockingham
Slate, Mrs. W. C.....Salisbury
Slocumb, Mrs. R. B.....Wilmington
Smith, Mrs. J. A.....Lexington
Smith, Mrs. W. G.....Thomasville
Sowers, Mrs. J. L.....Lexington
Speed, Mrs. J. A.....Durham
Spicer, Mrs. J.....Goldsboro
Spoon, Mrs. S. C.....Burlington
Spruill, Mrs. J. L.....Jamestown
Squires, Mrs. C. B.....Charlotte
Stamps, Mrs. T.....Lumber Bridge
Stevens, Mrs. M. L.....Asheville
Strong, Mrs. W. M.....Charlotte
Stuart, Mrs. H. D.....Monroe
Suiter, Mrs. W. G.....Weldon
Summer, Mrs. E. A.....High Point
Tatum, Mrs. W. L.....Salisbury
Tayloe, Mrs. J. C.....Washington
Taylor, Mrs. F. R.....High Point
Taylor, Mrs. T. G.....Leaksville
Taylor, Mrs. W. I.....Burgaw
Taylor, Mrs. J. W.....Greensboro
Terry, Mrs. G. H. B.....Asheville
Terry, Mrs. J. R.....Lexington
Thomas, Mrs. C. D.....Sanatorium
Thomas, Mrs. J. G.....Greensboro
Thompson, Mrs. A. F.....Troy
Thompson, Mrs. E. S...Winston-Salem
Todd, Mrs. L. C.....Charlotte
Troxler, Mrs. R. M.....Burlington
Turner, Mrs. J. A.....Greensboro
Tuttle, Mrs. A. F.....Leaksville
Tyner, Mrs. C. V.....Leaksville
Van Poole, Mrs. C. M.....Salisbury
Vaughn, Mrs. J. C.....Rich Square
Verdery, Mrs. W. C.....Fayetteville
Walker, Mrs. J. B.....Burlington
Walker, Mrs. H. D.....Elizabeth City
Walters, Mrs. C. M.....Burlington
Watkins, Mrs. G. T.....Durham
Watkins, Mrs. J. A.....Asheville
Watkins, Mrs. W. M.....Durham
Watson, Mrs. T. M.....Greenville
Warren, Mrs. R. F.....Prospect Hill
Weathers, Mrs. B.....Rosemary
Wessell, Mrs. J. C.....Wilmington
White, Mrs. R. A.....Asheville
Wilkins, Mrs. J. W.....Mount Olive
Wilkinson, Mrs. C. T.....Wake Forest
Wilkinson, Mrs. R. W., Jr.
Wake Forest
Williams, Miss Annie.....Warsaw
Williams, Mrs. J. H.....Sanatorium
Williams, Mrs. L. L.....Fayetteville
Williams, Mrs. R. C.....Wallace
Willis, Mrs. B. C.....Rocky Mount
Wilson, Mrs. W. D.....Smithfield
Wingate, Mrs. G. C.....Charlotte
Wishart, Mrs. W. E.....Charlotte
Wolff, Mrs. D. R.....Greensboro
Wolfe, Mrs. N. C.....Burgaw
Wooten, Mrs. W. I.....Greenville
Wright, Mrs. J. B.....Raleigh
Yarborough, Mrs. F. R.....Cary
Yoder, Mrs. P. A.....Winston-Salem
York, Mrs. A. A.....High Point

CONSTITUTION

(Written and adopted in 1923, amended in 1929, and revised in 1932.)

Article I—Name

The name of this Association shall be the Woman's Auxiliary to the Medical Society of the State of North Carolina.

Article II—Object

The Object of this Auxiliary shall be to promote unity, harmony, and concord between the members of the medical profession and between the members of such families; to assist in the social activities at state, district, and county society meetings; to interpret to the public the traditions, aims, and objects of the medical profession; to fraternize with women's organizations of whatsoever kind, and to promote in every possible way the interests in general of the medical profession—locally, state, and national.

Article III—Membership

The membership of the Auxiliary shall be composed of the wives, daughters, mothers, and sisters of members in good standing with the State Medical Society.

Article IV—Officers

The officers of this Auxiliary shall be a President, a President-elect, three Vice-Presidents, a Recording Secretary, a Corresponding Secretary, and a Treasurer.

Article V—Executive Board

These officers, together with two representatives from each of the ten councillor districts, shall constitute the Executive Board to conduct the business of the Auxiliary.

Article VI—Elections

Section 1. The officers shall be elected at the Annual meetings.

Sec. 2. Councillors may be nominated by the Districts but shall be elected every three years by the Assembly.

Sec. 3. The Vice-Councillors shall be appointed by the President for one year.

Sec. 4. The President shall appoint a Nominating Committee, in advance of the annual meeting, which shall be composed of five (5) members—no two of whom shall be from the same district.

Article VII—Meetings

The meetings of the Auxiliary shall be the same time and place as the session of the State Medical Society.

Article VIII—Delegates

Each member whose membership card has been presented to the registrar and who is wearing a badge as a result of such registering, shall be allowed one vote on the floor until such time as the Assembly has grown too large for such voting.

Article IX—Dues

Each member shall pay annually a fee of one dollar ($1.00) through local units where such are organized—otherwise to the treasurer or registrar. A membership card will be issued as a receipt to each paying member—which card must be presented when registering at the Annual Meeting.

Article X—Amendments

This Constitution may be amended at any regular meeting of the Auxiliary provided that written notice has been sent to each councillor not less than one month prior to said meeting.

BY-LAWS

1. Duties of Officers—The duties of the President, the Vice-Presidents, the Recording Secretary, and Treasurer shall be those which usually devolve upon such officers. In addition to her usual duties the Corresponding Secretary shall also serve as Press Agent.

2. Committees—The President and Executive Board shall have power to create such committees as become necessary to promote the welfare of the Auxiliary.

3. Meetings—All meetings of the Auxiliary and the Executive Board shall be conducted according to the regular order of business and parliamentary law which usually governs the conduct of such meetings.

4. Quorum—Seven members of the Executive Board shall constitute a quorum.

5. Amendments—These By-Laws may be amended at any regular meeting of the Executive Board or at any annual meeting of the Auxiliary by a two-thirds vote of the members present, provided that such amendments do not conflict with the spirit of the Constitution.

TRANSACTIONS

OF THE

NORTH CAROLINA PUBLIC HEALTH ASSOCIATION

TWENTY-SECOND ANNUAL SESSION

WINSTON-SALEM, N. C.
MONDAY, APRIL 18, 1932

TRANSACTIONS

OF THE

NORTH CAROLINA PUBLIC HEALTH ASSOCIATION

MONDAY MORNING SESSION

April 18, 1932

The Twenty-second Annual Session of the North Carolina Public Health Association convened in the Robert E. Lee Hotel, Winston-Salem, North Carolina, at ten-fifteen o'clock, Dr. J. H. Epperson of Durham, President of the Association, presiding.

President Epperson: I would like to ask that those of you who desire to engage in the discussion come up in front in order that the reporter may hear and properly record what you may have to say.

At this time I would like to call on Dr. Templeman of Winston-Salem to say the invocation.

Dr. S. H. Templeman offered prayer.

. . . At this point President Epperson presented the President's address. . . . (Applause)

ADDRESS OF J. H. EPPERSON, PRESIDENT N. C. PUBLIC HEALTH ASSOCIATION, WINSTON-SALEM, N. C., APRIL 18, 1932

I wish to take the opportunity at the present moment to thank this group of public health workers most profoundly for the honor which you have bestowed by electing me president of your organization for the year which is now about to come to a close. I consider it one of the bright spots of my career and I assure you that I am deeply grateful for your kind consideration.

I am mindful of the fact that there are many here today who for a long period of time have labored in the field of public health and to you may I say that it is a genuine pleasure to meet you again, shake your hand, tell a few yarns and reflect over the good old days which apparently have gone forever. Then there are those who have passed into the great beyond whom we miss and whose memory we revere. I should like to mention their names but you know them well and I know that at this moment these great souls are passing in review before you. They wrought well as public servants; they were our brothers engaged in a common task. To them we say goodbye but memories of them will abide with us forever. To those of you who have recently come among us we greet you and bid you welcome. We sincerely trust that you may profit by our deliberations and that you shall return to your respective communities greatly benefited and more keenly alert to the responsibility which you have assumed in engaging in this field of public service.

For eighteen years it has been my privilege to labor in the field of public health. I have therefore had abundant opportunity to make many observations, draw many conclusions, reap the harvest of sad mistakes and genuinely enjoy plucking a few roses which seemingly grow among the thorns and thistles. You too have had these same experiences if you have labored long and if you have not it is because of your recent entry into this field of service. But be not afraid for the harvest will eventually come to him who soweth well but remember that which ye sow shall ye also reap.

In casting about for something to say to you at this meeting which may be of more than passing interest, I have decided to endeavor to point out a few things which I believe would materially benefit those who have chosen or who expect to choose to specialize the field of public health. I am fully aware of the fact that your opinion about these matters may be entirely different from my own, but I am confident you will grant me this privilege in the few moments which I am to speak.

To those of you who at the present time are charged with the administrative responsibility of health units throughout the State I extend to you my sincere sympathy. During the past two years you have observed at first hand that horrible nightmare of actually witnessing the tightening of the purse strings and at the same time be admonished that curtailment of service is not to be countenanced. You have been constantly reminded that your budget is tremendously in excess of that which your neighboring community is expending and that you should immediately take stock and get in line regardless of what your health problems are or what you anticipate they will be as a result of the continued depression. You are mindful of the fact that even though your funds are all but depleted, you still have that something which the public calls a health department and from which various types of service is forthcoming upon demand or else you may be charged with inefficiency or neglect of duty. I could mention other conditions with which I am sure you are most familiar, but I am aware of the fact that you came here not to be further harassed but to enjoy the fellowship of this occasion and to profit by the remainder of the program.

From several years of experience in an administrative capacity I am confident that something can be done and ought to be done to at least partially relieve the local health officer of embarrassing situations relative to financial matters in connection with his budget. I am frank to confess that it is a complicated problem and one which should at this time receive the combined thought and best judgment of all of the men of this great State who administer the affairs of health agencies. I would even go so far as to suggest that a health officer's association be formed for the specific purpose of studying the cost of effective health service, one community as compared with another and going even a bit further it appears fair and proper that each and every community which expends money for health protection should know and be continually reminded that the extent of the service which it maintains is either negligible, partially adequate or totally adequate in proportion to its health service needs. We are all aware of the fact that the scale of salaries paid to personnel varies in many instances and this too is frequently a

source of embarrassment in the preparation and presentation of budgets.

In a recent news article appearing in the New York *Times,* Dr. Herman Bundesen, Health Commissioner of the Chicago Health Department, is credited with saying that the time has come when the frills and furbelows should be eliminated from health service and that funds expended should be for the prevention of disease and not for the purpose of merely providing a job for some one as a pickle inspector or otherwise who has political affiliations. You may judge for yourself whether the Doctor is right or not.

I have called these matters to your attention in all seriousness because I do feel that in this time of stress and strain when the taxpayer is crying loud and long for relief, that public health agencies must balance their budgets and do it in a way that will meet the general approval of the communities which they serve. And likewise the community should know the type of health protection it is purchasing and the extent of the protection in proportion to its needs. I know of no better way to study these matters than for the administrative heads of the various health units to get together and deliberate. In perfecting such an organization for the study of the administrative phase of health work I do not in anywise mean to infer that such an organization would take the place of this Association. It is imperative, I think, that these meetings continue and that the door be kept open for free and frank expression on the part of all public health workers to the end that methods of procedure may be discussed and scientific knowledge disseminated one to another. But on the other hand we must frankly admit that there are many conditions constantly arising in the local health unit which requires mature and sound judgment if the agency in question is to command the respect and good will of the community which it serves. It seems to me that it almost goes without saying that group judgment in matters of policy fixing would be of inestimable value to the local health officer rather than be placed in a position of having to wholly rely upon his own judgment in some delicate situation which may be thrust upon him almost without notice.

While I have the privilege of the floor as President of this Association I wholeheartedly recommend that an organization be perfected, the membership of which shall be those who hold administrative positions in the several units of the State and that the chief functions of the organization shall be to promote a broader knowledge of administrative practice, to fix reasonable standards of public health ethics, to determine within reasonable bounds the latitude of the health program and to fix policies relative to sanitary and general health legislation. Meetings to be held at the call of the President and such programs arranged as may appear fitting and proper in keeping with the purposes and intent of the organization. Without going further I leave the matter to the judgment of those concerned.

Somewhat with fear and trembling I now propose to present a matter which is not new by any means to many of this group. Informal discussions for many years have been heard concerning the desirability of a school of public health in connection with some of our institutions of higher learning. A big undertaking, of course, but who can say that

such an accomplishment is not possible if given encouragement by those who should be most interested. The majority of health department personnel of our State at the present time are recruited from the professions and the laity who have not had special public health training. It occurs to me that a fine and noble thing for those of us who are now fighting the battles in the Health Departments of the State to lend ourselves to such a movement in order that those who are to follow after us may have an advantage which we do not enjoy. I am confident that we would be rendering a real service to our commonwealth and that the day would eventually dawn when those who prepared themselves for definite health service would be sought after and compensated to such an extent that they would look more with favor to a professional public health career than is the case at the present time. I feel that it may be said that the majority of men and women employed in the several health units of the State today had little or no intention of entering the service when they finished their professional or collegiate training. Our foundation training was adequate in most instances but experience has taught us that we should have had a greater theoretical knowledge of public health procedure which can only come by way of the class room followed by a reasonable term of internship in a properly conducted organization.

Public health procedure as practiced today is a most complex thing. Physicians, dentists, bacteriologists, sanitarians, nurses, veterinarians, statisticians and other scientifically trained personnel, all grouped together for a common cause, viz. the prevention of disease. How well this personnel functions, depends not only on their scientific training, but to a large extent upon how well they have been taught to apply the knowledge at the right spot and in the right direction. I have observed over a period of years that it frequently occurs that persons entering health service are woefully lacking in ability to get results even though their scientific training appears to be adequate. The reason for this condition is evident. Their training was for a professional career somewhat foreign to the field of public health. Time must necessarily elapse before such a person may acquire the "feel" of the job which he or she has undertaken and naturally many mistakes are made which are expensive to the community and to the organization being served.

I now approach a subject which is receiving considerable attention at the present time. I make the few remarks which I have to make purely from a constructive point of view because I am fully cognizant of the fact that differences of opinion prevail among those most concerned. However, I feel that the time has come when free and frank expression should be given to the matter and that harmonious programs of endeavor can be perfected and will be perfected when each party becomes willing to deliberate one with the other on common ground. I refer to certain types of medical service which are being performed by health departments which in a sense is objectionable to the profession. Objectionable apparently because of the fact that individuals are receiving this type of service through their respective health agencies without direct cost. There is no doubt in my mind but what health officials have been forced to render certain types of medical services

at times as a result of political pressure which in a measure has been distasteful. In other instances it has been done because of the outstanding prevalence of a certain disease among the indigent and the semi-indigent which seemingly is a problem with which the health department must take official notice. In still another instance it appears necessary that certain types of medical service be rendered in mass proportion in order that the public may be convinced of the merit and desirability of such service before accepting the facts in the case and being willing to pay for such service.

I am fully confident that the time is at hand when Health Officials and the practitioners of Medicine should counsel together and formulate coöperative programs which will be mutually beneficial to each. Most communities at the present time are health conscious and are demanding an effective health service. The health departments together with those who have chosen the field of medicine are prepared to render this service and should render it rather than permit outside organizations to enter the field and cause further confusion. In many of the counties of the state at the present time coöperative programs are effective between the established health departments and the county medical societies which are entirely harmonious and which apparently is meeting the community health needs and fully satisfying the public. This service, I think, should be encouraged and extended.

There are many engaged in public health work at the present time who feel that our programs of health education should be extended and encouraged. Health personnel in the past has spent the major portion of allotted time on certain definite projects rather than making any determined effort at mass education. With the many organizations in existence at the present time that are ready and willing to undertake definite projects, the public health worker has an excellent opportunity to ally these agencies with him in such a manner that great good may be accomplished and at the same time tie up all the forces in the community under one leadership rather than have them working as independent agencies with confusion and overlapping resulting. Women's clubs, Parent-teacher Associations, Civic Clubs and other agencies afford excellent opportunity for mass Education concerning matters of health.

During the past decade of public health we pride ourselves with a few outstanding accomplishments of which we should be truly proud as public servants. We have witnessed a notable reduction in infant mortality. We have observed a tremendous reduction in the morbidity rate of typhoid fever and diphtheria. We have noted with pride our accomplishments in getting defects corrected in the pre-school child and the increased interest of parents manifest in this phase of health service. We have noted marked improvement in the public attitude toward immunization against specific disease. We pride ourselves in the progress we have made in the improvement of water supplies, milk supplies, public food handling places and the sanitation of homes and premises. In fact these things stand out as definite accomplishments in which we have had a part and for which we receive the thanks of an appreciative public. But for the moment let us turn a page and read of the conditions existing in our respective communities of which we are

not proud. Venereal disease, tuberculosis, cancer and pellagra stand out like a sore thumb to plague us.

It is common knowledge among public health workers that thousands of cases of venereal disease at the present time are in existence in every county in this great state and little or nothing is being done to tell the people of its prevalence or to establish means with which to cope with it. I have recently been informed by an agent of the U. S. Public Health Service that a survey of one community in an adjoining state reveals the actual fact that approximately 20% of the negroes were infected with syphilis and that from six to ten percent of the white population likewise reveal infection. He expressed the opinion that my own community would show this disease to be equally as prevalent as the community surveyed in the adjoining State. With this fact in mind is it not time that more effort should be put forth to give the people the facts, sad as they may be, and ask them what they propose to do about it? I think so.

Approximately ten per cent of our deaths at the present time are due to tuberculosis. Hundreds of incipient cases are in existence and no chance to have them admitted to Sanatoria on account of the few available beds. Hundreds of cases of the disease in the incurable stage infecting the immediate members of their families and no place to isolate them. And still the public does not seem to be greatly concerned. It appears that our people have become so accustomed to the disease that they accept it as a matter of fact and treat the subject with an air of indifference.

Cancer and pellagra like the other two are taking their toll in human life. Hundreds of cases of each are in existence and daily the death certificates are rolling in to record another untimely death.

Today we read on every hand of the tremendous cost of government and that expenditures must be reduced. With this fact constantly staring us in the face it is apparent that no additional funds will be available with which to further combat these diseases. Our responsibility as public health workers becomes more hazardous. Depression and disease on one hand and curtailed budgets on the other. It is a time when we should do some sober thinking and attempt to convey to those who hold the purse strings the true situations which exist. Certainly we may not expect to obtain funds at this time with which to carry on effective programs unless we properly balance our budgets and show that for every dollar which we propose to spend that a dollars worth of service will be forthcoming.

In conclusion I wish to say that I have presented certain matters to you in this brief address which I believe to be highly significant at this time. I trust that the suggestions may be worthy of your consideration.

THE NECESSITY OF HAVING HEALTH CERTIFICATES FOR DOMESTIC SERVANTS

By Dr. Z. V. Moseley, Health Officer, Kinston

Since my appointment as County Health Officer, naturally I have had a vision into the great field of preventive medicine that I never had

before. I do not think that my views were different from the average general practitioner. Today my mind is broader and I am learning more of the value of preventive medicine, realizing the numerous channels, storms and battles that the "Old Ship" must sail and fight in order to accomplish the victory that preventive medicine will some day surely gain.

In choosing this subject, "The Necessity of Having Health Certificates for Servants in the Homes," I realize, fully, the value of a home "Home Sweet Home be it Ever so Humble." There can not be complete happiness unless there is health, for health is the foundation of happiness. There are many factors that may have an influence on health conditions in our homes, one of which is domestic servants, such as, housekeepers, houseworkers, cooks and nurse maids, and for these I am advocating health certificates.

In planning a home the utmost care is always used, not only in building material, sanitation and location, but here in our own State, before marriage, the parties go before some of the best medical men for physical examination. They know they are to make another home, with hopes of having children, and they are anxious that none of their offspring may have the misfortune of having been born with some handicap in life, as a result of some preventable disease. At child birth the most skilled services of physicians and nurses are obtained and all through life this service is provided when possible. But one great source of infections and contagious diseases in our homes receives but little thought; that is the health of the domestic servants; the health of the one that prepares all the food that we consume; the health of the nurse maid that has the responsibility of attending that dear little babe, from birth possibly to adult life. I say the idea of requiring a health certificate for the servants is seldom considered, or, if so, it is taken for granted that the servant is all right because you have known her or him a long time; or his or her mother nursed in the home years ago; or because a neighbor up in society once employed this particular servant. Only last month my attention was called to the fact that a banker, in whose home, after sixteen childless years a baby boy arrived. Every thing that money could buy was provided for the protection and comfort of this future president or banker. A servant was employed to do the cooking and general nursing of this baby. The father was sure he had the best servant to be had, because of the fact that he had the servant of his former pastor. This banker did not know that only twelve months ago this servant had a four plus Wassermann and received only ten doses of Neo-Di-Arsenol.

In this State I think most of the servants are from the colored race; a race which has a large percentage of tuberculosis, syphilis and gonorrhea. This being true, it is my opinion that the public should be protected by a State law making it mandatory for domestic servants to have health certificates, much like the law requiring health certificates for food handlers in markets, restaurants and hotels. A number of cities, realizing this need, have such an ordinance. September 1, 1930, Newark, N. J., adopted an ordinance requiring a health certificate every six months for every domestic servant. This certificate indicates that

the individual has been found free from tuberculosis or any other communicable disease. The results from this law have been satisfactory.

A servant in the early stage of tuberculosis or in a comparatively advanced stage of tuberculosis may not be suspected and allowed to work in a home, exposing the whole family to this dreaded disease, until one or more members become infected. Each time the servant with tuberculosis coughs or sneezes there is a fine spray of millions of live tubercle baccilli, which may get in the body of a healthy person, causing them to become infected with this deadly disease. A number of people during the act of coughing will hold their hand over the mouth spraying millions of tubercule baccilli into their hands, and without washing the hands, go on with their work drying the dishes, fixing baby's bottles or some other houshold duties.

Since becoming connected with public health services, I have been more convinced of the necessity of protecting the householder and family from venereal diseases that so many servants are infected with. It is rare that there are any symptoms that the average family will detect in servants with a venereal disease. It may be months or even years before the family realizes that one or more of them are infected with some loathsome disease, and then not knowing the origin, there might be domestic trouble and a home broken up, besides the family being infected with this disease.

A servant having gonorrhea may infect members of a home in numerous ways. From toilets, for no doubt in many cases their hands are not even washed after attending to a call of nature.

I feel that the danger of contracting syphilis is equally as great, if not greater, than other infectious diseases that a servant may transmit. I think every secretion from an infected person having this disease may be a means of infecting others; the urine, stools, saliva, tears, perspiration and blood.

If there is a case of typhoid fever, pneumonia, tuberculosis or any other contagious disease in a home, the dishes, etc., used by the patient are always sterilized thoroughly each time they are used; we know that merely washing a dish used by an infected person, will not kill the germs that may cling. We demand sanitary cups at the soda fountains for this very reason. We also know very well that one of the surest ways of contracting syphilis is through the mouth. Servants eat from the same dishes used by the family, and they are washed in the same water at the same time.

It is my opinion that venereal diseases among servants is on the increase, and for this reason I feel the need of a law requiring health certificates for domestic servants. I do not think this question can ever be settled by educational means alone. The education of the public concerning syphilis has made very little progress. No matter how well educated some housekeepers are they are still entirely ignorant on the facts concerning this dreaded disease. It has always been talked about behind closed doors and in hushed voices. It is still the opinion of many that the only way of becoming infected with syphilis is by being immoral.

The servants are not of their own accord, going to have any blood examinations or treatments. Why should they when they can be employed in the homes of the best people without it? Therefore, the law demanding health certificates for domestic servants is needed to protect those who are unaware of the dangers to which they are exposed. You may realize the advantage of requiring a health certificate in your home but numerous others do not. When you are dining out, you are not going to pause to ask your hostess if all the servants have health certificates, yet you should be protected. This question, therefore, is not just a private matter, but a public proposition and I trust in the near future all will realize the necessity of a health certificate for the domestic servant.

In North Carolina as in other states there has been a great and successful fight against tuberculosis in recent years. The results in diminishing this disease have been wonderful. We should make just as great a fight against venereal diseases and a state law compelling domestic servants to have health certificates would be a great step in this direction.

Dr. E. R. Harden (Lumberton): Mr. President, Ladies and Gentlemen of the Association: I want to say in the beginning that I agree with everything that he has said. By way of apology I will say that the reason we haven't such a law in my community is because I have always maintained that no public health law should be put on the statute books unless we have ample means and sure means of enforcing it. Otherwise I think you do more harm than you do good.

Our general public in my community has become pretty well educated to the importance of having their servants examined. That is, at least the thinking part of the public. Most of them do send their servants down to the health department or to their private physicians for examination.

We have gotten them so well educated on the matter of blood tests that practically all of the colored people come in and ask for blood tests. We have hundreds of them on our records. Almost anybody who employs a servant can, by calling the health department, get a record of Wassermann tests on that particular servant.

Of course that is not altogether satisfactory because the greatest danger, as I see it, is from gonorrhea and not syphilis in servants. While syphilis is some danger, most of it will be the old syphilis, and there is not near the danger of infection that there would be from a case of gonorrhea.

I don't know how the rest of you feel about it, but I am a pessimist so far as the consideration of a cure for gonorrhea in the female goes. I believe that it is a disease that is rarely cured in women.

However, I believe that the doctor's paper is approaching this thing in the right way, that there should be a state law. If we have reached the point of education where the public is ready for it—and I believe we have—there should be a state law that demands examination of all servants who work in homes, and there should be proper means of enforcing that law.

When that is done, undoubtedly there will be fewer cases of gon-

orrhea among little children in our homes and there will be some unfortunate cases of syphilis prevented that are contracted in this manner.

I think that is probably the only solution of it. I can't see where we are going to be able to enforce a law like that locally with our present facilities, rather our town police force whose idea of law enforcement as a rule doesn't extend beyond the matter of arresting somebody for petit larceny or crap shooting.

Dr. R. S. McGeachy (Greenville): Dr. Moseley's paper I think is very appropriate. I can state instance after instance right in his own county, because I happened to be there for nearly ten years before Dr. Moseley, and my office happened to be right opposite one of the leading hotels in the town.

One day one of the new maids, a white girl, came into my office and said, "There is something the matter with me." She was broken out from head to foot with smallpox, and working in one of the leading hotels in the town.

About the same time I spoke to one of the leading druggists in the town, who had seven children, ranging in age from fourteen years to six months. I asked him if he had had his servants examined. He said he had sent three to be examined before he got one that was all right. He said that one was working at home then; she had mucous patches in her mouth right at that time. The next one he sent was in primary stages of syphilis. The next one had a four plus Wassermann but had no open lesion. He said, "What in hell am I going to do? I have tried three and still you keep turning them down. What am I going to do?" I said, "Keep on trying," and he finally got one who proved to be all right.

Out in the country from Kinston, up in the Institute neighborhood, a woman was sick with influenza, and she got a servant to come in her home and nurse for her. The second afternoon the nurse was in the house she complained of being sick. So the woman whom she was nursing told her to go upstairs in a vacant room and put a pallet on the floor and lay down and rest. This happened to be a colored woman. The next day she was broken out with smallpox.

A few years ago one of the best families in Raleigh had the experience of having three members of their family infected with syphilis by one little 16 year old nursemaid. She infected the baby, the baby infected the mother, and the mother infected the father. The family is still living in Raleigh.

I have tried in both Lenoir County and Pitt County to create a sentiment among the servant-hiring people that they demand it, and I told them that when they got to that point that I would have my local board of health pass an order making that required, but it was no use on earth to do it until they themselves began to demand it.

Fortunately we have had some little results. One of the women in our town sent a servant up to me. This servant proved to be a four plus Wassermann but had no open lesion.

Now, gentlemen, I am going to say something that I have said at practically every meeting I have attended but have never yet been able

to get a ruling on it from anybody. I want to know when we are going to turn down a servant or anybody with a four plus Wassermann. I have turned them down in Lenoir County and then have them come back to me in half an hour with a certificate from the leading physicians in town saying they were perfectly able to work.

What are you going to do? I couldn't get into a controversy with the practitioners in my county. If we can get an ordinance passed or a regulation in this Association that nobody with a four plus Wassermann can work then we will get somewhere. Everybody I have talked with—the public health service men, V. D. Clinic men in this state—says, "Well, if they haven't got open lesions or anything like it, you can't turn them down."

I don't want any of them in my house with a four plus Wassermann even if they haven't got any open lesions. I think the time has come when we should take a stand on that and everybody get on the same ground, so that we can go before our County Medical Society and say, "Here is a regulation adopted by the North Carolina Public Health Association, and we have no right to go against it."

Dr. John H. Woodcock (Hendersonville): I require four Wassermann blood to take at least eight treatments before they can go back to work. If they have a one plus they must take two treatments; if they have a two plus, four; three, six; four, eight. I require that before they can go back to work. But that doesn't mean that they discontinue treatments then. If they have a four plus I make them take eight treatments and then finish out the other seven treatments, making fifteen in all. I don't require them to take fifteen treatments if they only have two or three plus. They generally take about ten.

Dr. J. A. Morris (Oxford): Mr. President, Dr. McGeachy asked for a decision as to whether a four plus Wassermann might serve. I should like to know who can tell exactly the limits of the primary stage, the secondary stage, and the tertiary stage of syphilis. It is thought that it is not communicable in the tertiary stage but when did that begin?

In June I think of last year, in one of the summer issues anyway, there was a report of cases of recrudescence of syphilis, old cases that came back and had the second period of the exanthematous eruption.

Well, they are to be classed certainly as secondary and if they are secondary they are just as dangerous as if they were not fifteen years old.

It is thought that just because there is no skin lesion, that gives them entree into any sort of service. It does not, for nobody can tell when they are going to have a lesion, and they are not going to tell when they have a lesion. They carry their lesions in secret and in the open they give them out.

I do not believe that a one plus Wassermann ought to serve, either. I have had enough experience in taking one plus Wassermann and following them up until I drove them into four plus Wassermanns. I dare say all of you who have treated syphilis have done the very same thing, and I do not believe a person with syphilis ought to be allowed to serve anywhere.

As to gonorrhea, I don't know what to say about that. I want to ask how you would decide such a matter as this: a long time ago, before I was a health officer, a comparatively young man came to me and wanted to marry. He had gonorrhea. I treated that man for six months and I thought of him just as soon as Dr. Harden mentioned the fact that it is one of the incurables, practically an incurable disease. He had no sign of gonorrhea. I could not by the method of expression, by massage of the prostate, get any indication of gonorrhea. I advised him, however, with the knowledge that I had from experience to wait six months longer before he married. He did not because he had no evidence of gonorrhea. He married and his first three baby girls every one of them had gonorrhea.

If he by infecting his wife could produce that, certainly a servant might pass it on very easily by handling, because that is all the mother did. They were a moral family. You might infer that this man was a moral man from the fact that he did not want to carry gonorrhea into his family relations. He had quit his evil life and yet there was the tragedy of those three little girl babies having gonorrheal vaginitis.

A servant ought not to go into the home with any venereal disease. That is my opinion.

Dr. J. Symington (Carthage): This is a very serious question to me. We are up against it in Carthage. I have come across young girls suffering from this disease.

I should like to ask one question of the writer of the paper, or anyone else: if this law is enforced what are we going to do with the servant who is found to be infected from any one of these diseases? Are those servants to go back to their own families? Their own families need protection as much as the families in which they are employed. Is there to be a hospital built for their reception?

I am up against cases of people working in hotels and other places. What are we going to do with them? It becomes an economic as well as a medical question.

Then, again, the servants need protection from the families in which they serve. We have been hearing about families who are infected. What about an innocent girl going in there to work, or a man?

Dr. F. L. Ray (Charlotte): I think this thing will work itself out. For instance, in our department we had one lady who brought fourteen servants into the department to be examined. All fourteen were either infected with gonorrhea or syphilis or both. She went home, discharged the servants, and did the work herself.

Dr. R. F. Yarborough (Louisburg): I have listened to Dr. McGeachy's talk with a great deal of interest but there is one thing that has to be done before we can accomplish anything. The law has got to be changed. The present law does not permit you to stop a servant from serving unless he shows open lesions.

I had an instance of that some time ago. I examined a cook in a restaurant in my town. I stopped her from serving in the restaurant. I wrote for an opinion. I got the opinion that you cannot stop a servant unless she shows open lesions.

What are we going to do? There are lots of unscrupulous people who are running restaurants who don't give a continental for their patrons.

Now, what are you going to do about that?

We have got to go before the Legislature and get this law changed, so it says that this servant cannot serve.

In regard to Dr. McGeachy's remarks about tuberculosis, I should like to say that that to me is the most important thing we have to contend with in North Carolina. What are you going to do if you find a nigger has tuberculosis? They are absolutely indigent. They have no money with which to do anything. They scatter it among themselves. A whole family gets it. You don't know where it is going. Before it is ever detected, they are going to have it. You can't always tell tuberculosis, at least, I can't. And they scatter it.

I know of an instance of a professor at one of the colleges in this state who had a little daughter, the pride of his family. His servant had tuberculosis. That little girl contracted it and after years of suffering died.

I want to know what we are going to do with a nigger who has tuberculosis. That is a question that has worried me ever since I have been practicing medicine and more so since I have been a health officer. (Applause)

Dr. Moseley (closing discussion): I think the answer has already been given to what we will do with these servants that have been found infected. I think the doctor from Charlotte has answered that. These questions will gradually work themselves out. Anyway, take them from the homes where there are little children, in order to prevent the spreading and infecting of others.

It has been the custom to require a food handler to have a health certificate. I do not give a health certificate unless the person gives a negative Wassermann. The law may not permit me to take them from work if they do not have open lesions but I won't give them a health permit unless they show a negative Wassermann. I don't look for any lesions.

Another thing that I am doing which we haven't spoken of this morning is this: the law requires before a couple can be married that they have health certificates. The general practitioner in my home town—probably they are doing the same thing over the state—just makes a rough examination. He does not make a blood examination or anything like that and when they appear before me as the health officer, to grant them a health certificate, I demand a blood examination, and for that reason I am not doing much of this kind of work among those seeking to be married. I am helping the general practitioner in that way. I am making these parties go to the general practitioner, instead of coming to the health officer, and am getting away from causing so much dissatisfaction among the general practitioners by doing that.

President Epperson: Thank you, Doctor.

Before passing on to the next paper I should like to say that at the afternoon session there will be a representative from the United States

Public Health Service who will present a paper on the importance of syphilis as a public health problem. I should like for all of you to be here and hear this discussion. We only have two other papers scheduled so I am sure that we will have ample time to discuss this proposition at some length, and since this discussion has come out this morning in connection with Dr. Moseley's paper I take it it will be very timely to have such a paper on our program.

The next paper on our program is by Dr. F. M. Register, of Goldsboro, his subject being, "Popular Health Education." (Applause)

POPULAR HEALTH EDUCATION

By Dr. F. M. Register, Health Officer, Goldsboro

When asked by our Secretary, Doctor Mitchel, to write a paper on Popular Health Education I fully realized that there were men in our organization more competent, to write on this subject, than myself. Doctor Carlton, named to discuss this paper, a man who has done splendid and outstanding work along this line, should have written this paper, but I have been so interested and intrigued with this subject for so many years that I could not refrain from making the attempt, knowing that more good discussion is often brought out by a mediocre paper than by a paper that completely covers the subject.

Popular Health Education might be defined as Health Education suitable to the public in general, easy to understand and adapted to the means of the common people—the common people, that great mass of people who constitute about 90% of the population of these United States. If you reach the common people your cause is practically won, be it politics, merchandise, or health. The media for disseminating Popular Health Education, as I see it, are as follows, in the order of importance:

First—The Newspapers, Periodicals, Medical Journals and Bulletins.

Second—Radio.

Third—Moving Pictures.

Fourth—Demonstrations and exhibits.

Fifth—Lectures.

Sixth—The Billboard.

NEWSPAPERS AND PERIODICALS

There may be some difference of opinion as to the relative importance of the other media of Popular Health Education named, but I believe practically 100% of my hearers will agree with me in the proposition that the newspapers are the best media today, viewed from every angle, for putting over health education for the masses, the common people if you please. The newspaper is read by practically every one that can read and those who cannot read, hear the newspaper read and discussed —newspaper articles are in the language of the people—newspaper articles have a catchy head line, then the statement is clear, short and to the point and, still, the same subject carried on from day to day is

as varied in language and form as the snow flakes that fall on a winter's day. What other media is so changeable, yet so entrancing, so different in wording, but carrying the same thought through for days, weeks and months. A Health Officer trying to put over health education without the help of the newspapers will soon wake up to find he is only a dud. Health people have often been unfair to newspapers, first because, we try to get too much for too little. In expenditures for health education, something should go to our best friends, the newspapers. Second, we often prepare stale and dull articles for newspapers and expect them to be printed. We should put our best work into these articles, make them an asset for the paper rather than a liability. In the late Milk for Health Campaign our newspapers were the real working tools that put the job over. Our periodicals are very helpful, especially those periodicals devoted to health education exclusively. There are many of these too numerous to mention in a short paper. Then we have those periodicals that have either a page, or column devoted to health education that are popular and helpful. We have always at hand splendid bulletins on various subjects, gotten out by Boards of Health and Insurance Companies.

RADIO

The radio I have put down as the second medium of importance in Popular Health Education. I have put the radio down for second place, not for what has been done, but for the possibilities of the radio in Popular Health Education. Lectures and talks on health over the radio heretofore have been rather dull and drab, nothing to entertain as well as instruct. We should take our cue from commercial advertising and put all the frills of expectancy and entertainment in as a part of our broadcast on Health. The radio as a medium of Popular Health Education is full of possibilities, but is used today as far as Popular Health Education goes, only as a major machine to disseminate a minor lecture. The little radio in your home can be made a theatre upon whose stage, the drama of health is enacted and made so real even without the aid of television that we can hear and see the players and enjoy the preludes and interludes of music and in this entertaining way health is taught painlessly to a waiting public who are anxious to turn the dial to Station H-E-A-L-T-H night after night.

MOVING PICTURES

For the third medium of Popular Health Education I have put down moving pictures, or talking pictures. There has been comparatively few moving pictures on health and I understand there are no talking pictures on this subject. A wonderful field to be so neglected and uncultivated. Of course it costs a great deal of money to produce a good moving picture, but it does seem that some philanthropist would see the wonderful benefit that would be derived from a few good talkies on health to compete with plays of "slush and mush" and add this to his philanthropies.

DEMONSTRATIONS AND EXHIBITS

Our fourth medium of Popular Health Education are demonstrations and exhibits, giving vaccines to prevent certain diseases, tonsil and adenoid clinics, dental clinics and orthopedic clinics are media of Popular Health Education, but these have a decided limit and when carried too far have unfavorable reaction. Exhibits are always very helpful in Popular Health Education and have splendid educational value. You can realize this when a well gotten up health exhibit is put on at a fair, or exposition. You can note its popularity by the crowds that it attracts. I believe a good portable health exhibit carried to villages and hamlets throughout the state would be valuable and well worth while. At this time Germany has such an exhibit, on cancer, traveling from place to place. In our Milk for Health Campaign, we secured an unused store room in center of town. We lined the walls with Milk for Health posters, made by school children and others in the county. We got 10 miniature dairy barns, made by school children, we secured two electric refrigerators, in which the dairymen put quantities of milk to be given away daily, especially to undernourished school children. We kept the room open daily for a week with some one in charge all the time and literally thousands visited this show and went away instructed. This was Popular Health Education.

LECTURES

Lectures are always effective, if put over in an attractive style. I believe every Health Officer should be a graduate in public speaking. It would have done you good to have seen the reception our own Doctor Branch, of the State Board of Health, received from teachers and pupils in Wayne County last year. He spent a week with us, gave 25 lectures to 9,000 people, in other words, one person out of every six people in Wayne County, heard Doctor Branch. He should be renamed, he is not a branch, he is a river. Doctor Branch has the catchy, popular style of speaking that catches all from the first grade to the principal of the school. The school principals in our county were just as wild about him as the children. The work he is doing is real Popular Health Education.

THE BILLBOARD

The billboard is used extensively by commercial concerns. I am sure it could be used just as effectively in Popular Health Education. That silent reminder, placed at strategic points, where the human race goes by, in a position "where he who runs may read" and so plain that the wayfaring man tho' a doubting Thomas need not ere therein, but would know that it is better to walk a mile for taxbill.

Dr. R. L. Carlton (Winston-Salem): Mr. President, Fellow-Members: I thank the Doctor for suggesting that I discuss his paper. I especially thank him for the suggestion that I might have written it. I appreciate this very much in view of the long years that he has been in public health work.

All that I wish to do is emphasize the points that Dr. Register has mentioned. I agree with everything he has said regarding public health

education. In fact, he and I agreed this morning that public health education is the whole program.

The word of mouth of everyone engaged in public health work, be he doctor, nurse, or inspector, or whatnot, is an occasion for teaching public health. Every visit of the nurse to the home, to placard or instruct regarding a case of communicable disease, or to deliver a birth certificate, or follow up a missing schoolchild, is an occasion for delivering a health message. Almost every activity of the doctor connected with the Health Department, whether it be examining somebody, a periodical physical examination, or immunizing against typhoid or smallpox or some other communicable disease, or whatever the activity be, is almost invariably an opportunity to get across a health message. Even the sanitary inspector who is securing the abatement of a nuisance has a chance to deliver a health message.

In the matter of public health literature, I am sure we are all agreed that we need more public health literature and that we need to distribute it on any and every occasion. We need to mail it and we need to give it away and we need to send it home by school children. We should take advantage of every opportunity to distribute literature concerning communicable diseases—for instance, the National Negro Health Week, the early diagnosis campaign for tuberculosis, Child Health Day, May Day, Mother's Day, and all these other special occasions.

The greatest problem we have is where to get the literature. If you have money enough in your own budget to provide your own literature you are lucky. I haven't had it for several years. The State Health Department furnishes some. The United States Public Health Service will furnish some. The Children's Bureau will give you fifty copies if you beg for it. And here is a tip: get your fifty copies from the Children's Bureau, then write to your Congressmen and Senators and get them to give you some more, and they will double up on you. The North Carolina Tuberculosis Association will help you to the extent of their ability.

Posters are of value in this public health educational work. Dr. Register didn't show you a group of posters he has here which are wonderful posters, and they ought to be displayed everywhere whenever we have an opportunity. And make an opportunity if one isn't presented to you, in the Public Health Department, in schools, in factories, in stores, and when campaigns come along like Child Health Day or Milk for Health Week Campaigns or the Christmas Seal Campaigns in December. We can put them everywhere.

Charts and graphs ought to be used for educational purposes. They don't have to be elaborate charts, either. As Dr. Hege said regarding some of the charts in my department a few years ago, they must be so darned simple that anybody can read them. But charts are effective if they are simply made and hung on your walls you teach public health to folks other than doctors who come into your office to inquire about certain things.

The clinics that your Health Department conduct are a means of educating the public.

May I mention the Baby Health Stations in this city? We established a baby clinic in Winston-Salem in 1919. In that year we had 122

mothers and their babies visit the stations, and we had to circularize them and write them and have newspaper articles by the dozen. Then we had to send nurses into the homes and literally drag those mothers into the stations in order to get them there. But we kept at it. We persisted with our literature and our newspaper publicity and every other kind that we had and in 1931 we had a few more than 3600 visits to those stations. And we didn't use any high pressure means at all to get them. Incidentally we only had one death among that group of 3600 last year, and in 1930 we didn't have any deaths among the baby clinic children registered at the stations during that year.

As I have said, special occasions may be used to great advantage in getting across your health message. Take the Christmas Seal, in Winston-Salem, for instance, because I know more about that than I do about the others. Every year this is an occasion for good educational work along health lines. We use it. Last year, for instance, for six weeks before Christmas we had a weekly radio talk on some phase of tuberculosis. The newspapers carried almost a daily article regarding tuberculosis. Schools, clubs, and factories were bombarded with literature Posters were displayed everywhere and I think the receipts from the tuberculosis Christmas Seal sales in our own tuberculosis program of control in Forsyth County are right good evidence that the thing is and was effective.

The newspapers are by all means the stronghold of the health educational field. News articles ought to be written so that the papers can use them, not stale and dull as Dr. Register said, but they should be more nearly like the newspaperman would write them, himself. If this is done there won't be any lack of available space in your papers.

I would suggest that, in addition to what Dr. Register says, the health officer should be trained in public health speaking, that it is just as important for him to be a trained journalist.

May I mention the scarlet fever situation in Winston-Salem? For the last few weeks we have had a flareup of scarlet fever here. Our newspapers have carried no less than twenty-one short news stories pertaining to the scarlet fever situation in Winston-Salem during the last five weeks.

Another example of good newspaper help in Winston-Salem is the special child health edition which our paper gets out the first of May, May Day. Our papers are working on that now. On the first of May, which is a week from next Sunday, our papers will get out a magazine section devoted entirely to child health and the majority of the material in that section will be provided by the city and county health departments. We think it is a splendid opportunity.

May I mention the pellagra situation in this section of the state?

The health departments and the newspapers thought that we had more pellagra in this section of North Carolina than we should have, and we did, and a little more than a year ago one of our newspapers began a solid year's campaign against the disease. Every morning one of the papers carried a boxed article on the first page, an authoritative article regarding pellagra. In 1930 we had thirty pellagra deaths in Winston-Salem. The depression was on. Folks were unemployed.

Many of us were not eating as much as we should have and everybody expected the pellagra incidence and the death rate to go up. Instead of that, in 1931 we had twenty deaths, instead of forty. We had had thirty the year before.

I am sure that the good result was partially due to the educational campaign of the newspapers.

I might go on with these incidents indefinitely. Health officers are all agreed that we need more public health education and that is what we should work for. (Applause)

Dr. Hamilton (State Board of Health, Raleigh): Mr. Chairman, Members of the Public Health Association: There is hardly a thinking person who will not admit that public health education is one of the most important functions and one of the most important services that a health department can render. It is incumbent upon every health worker that he exercise whatever intelligence he has in order to advance public health education by every means available.

Dr. Register and Dr. Carlton have given a very comprehensive discussion of the different types of public health education. Dr. Register overlooked one item in his paper which he has not overlooked in his practice and that is the educational work that can be done in his office.

Perhaps some of you folks saw Dr. Register's office before he took charge of it. It is an old abandoned jail, and it looked just about as hopeless a location for a health office as anyone could wish for. Today I have no fear in saying that he has the most attractive health office in the state, and it isn't the most expensive one by any manner of means.

The people who come to your office are people who are interested in public health work. They are your best prospects.

One of the most discouraging things about public health education is the lack of interest that people manifest. You can talk and talk and talk, and you can write newspaper articles, and whatnot, and you have a feeling of defeat most of the time, or at least I always have had, that you are just reaching a small number of people. But the people who come to your office are folks who are interested. Even if they come in to complain about something they are better prospects, and I am quite sure that any salesman would recognize them as better prospects, than the fellows we run down on the street. So I wish to urge particularly that we pay a little more attention to the appearance of our office, the display of posters and graphs, the making available of literature, and other items that I am sure will suggest themselves to you. Make your offices attractive so that when people come in they will be able to carry away an idea.

I thank you. (Applause)

President Epperson: Is there further discussion?

Dr. J. Symington (Carthage): I just wish to ask a question.

Do papers in the county in which he resides require pay for the articles on public health? In our county the newspaper editors have been very generous and very fine. One however complains that he is the poorest paid editor in the county and would like to be paid for articles we send him. I should like to know if that is general in the other counties.

PRESIDENT EPPERSON: Is there any further discussion?

DR. R. F. YARBOROUGH (Louisburg): I should like to say, for Franklin County, that the papers of my county give me a column for health items which I use weekly.

PRESIDENT EPPERSON: Is there any further discussion? If not, we will ask Dr. Register to close the discussion.

DR. REGISTER (closing discussion): We don't have to pay our papers for anything. They send a reporter down every morning for something. If we have something for him he is very glad to have it.

I should like to say that I have some stuff over there on the table. I wish that you would all look at it. It is quite interesting in some ways and I think you will be interested in this phase of the problem of public health education.

PUBLIC EATING PLACES

By MR. R. L. WAGNER, Food Inspector, Winston-Salem

Clean foods and clean places in which to prepare and serve them are the most important factors in maintaining a successful public eating place.

It has been said "A man is about what he eats." Hence the importance of eating clean food in clean places in order to be clean people and good citizens.

The first essential in the satisfactory handling of food is a good building, so constructed as to be at all times free from rodents and vermin. The walls must be sound and smooth. Ceiling should be plaster, metal, beaver board or cellotex. Wood ceiling should be prohibited. The floor should be sound, smooth and water tight. Proper and adequate window space or artificial light and mechanical means of ventilation should be provided to render the air healthful and odorless. The building should be of such size as to accommodate the fixtures expected to be placed therein.

The fixtures should be factory made, if possible. If made at home —smooth lumber, free of knots should be used in construction. No cracks or crevices should be left where dust, dirt and particles of food can collect and where bugs can hide and multiply their kind in countless numbers. All fixtures, except range and a few others that have to be fastened to the floor, should be on legs not less than six inches from the floor. No fixture should be placed closer than twenty-four inches to the wall. This suggestion, while apparently revolutionary, is based on my years of observation of the objectionable features of crowding equipment against the wall. A double compartment sink of adequate size, with drainboards attached, and provided with ample supply of running hot water is necessary for washing dishes. Some type of dish washing machine should be installed wherever possible. Two hand bowls should be provided—one for the public and the other for the employees for washing their hands. These bowls to be provided with both hot and cold running water. Lockers should be provided for street clothing of employees. Where male and female are employed separate lockers and rooms are desirable. Screens should be installed and in

good repair at all times, for all openings of the building, if flies cannot otherwise be excluded. A conveniently located toilet must be installed and where both sexes are employed two toilets or more, if needed, must be installed. Where toilets open directly into the dining room or kitchen, a properly lighted and ventilated vestibule, containing not less than sixteen square feet of floor space to protect direct entrance to the toilet. Individual towels and powdered or liquid soap must be provided at each hand bowl. Dry sweeping in any part of a public eating place should be prohibited. Dust preventing floor sweeping compound should be used. All refrigerators and ice boxes for the storage of food or drink must be lined with some proper metallic substance, so as to be water-tight. The present cost of electric refrigeration makes its use economically practical, even in the smallest cafes. I recommend its installation wherever possible. No public eating place should be allowed to operate without a storage room for supplies.

All of the above items of building and equipment are advisable and necessary to protect the general welfare and health of the people patronizing public eating places.

I repeat that clean food and clean places in which to eat it, are essential to clean living and good citizenship. The term "higher standard of living" is synonymous with the word sanitation, and sanitation is pertaining to health, therefore, the Sanitary Inspector is a Health Inspector, which title I would like to see him carry henceforth and forever. Raise the standard of our public eating places and we will be far along the way of raising the standard of living. All through my years of inspection work as Food Store Inspector I have heard the expression, "we must have the little dingy, dark and somewhat dirty places for a class of people that will not feel at home in better and cleaner places to eat." I deny this. I have seen the worst of them go, and I have not heard of anyone yet refusing to go into a place to eat because it was too clean. It is true, however, we have a class of people who can't afford to pay the price for food that some of the better places charge, but the idea I wish to convey here is that the poorest class of people are entitled to the same degree of protection that is found in the best eating places. This can be done without working too great a hardship on the little man or rather the man with little money. Water can be heated as hot in a ten gallon tank as it can be in a one hundred gallon tank—and so on throughout the whole line of equipment. There is only one thing in the way of such a program and that is the unfair competition our licensed public eating places are up against. The commercial boarding houses are serving meals to transients the same as the cafes and hotels and are paying no license and are under no sanitary regulations whatsoever.

The more I study the subject the more I see the crying need of a state-wide, sane, uniform law regulating both types of our public eating places.

I estimate, two million dollars, or more, are invested in cafes in North Carolina. And I venture the assertion there is not another investment in the state to the amount of two million dollars, which is of

such vital interest to the general public health, that has so little protection as the cafes.

The furniture dealer can repossess his furniture. The clothing merchant can take the suit of clothes off the purchaser's back, if he fails to pay for it. The jeweler can get back his watch. The cafe operator can only try to get back something with a stomach pump, but if he does, what has he?

The boarding house proprietor can collect a board bill, if the boarder has a suit case with only a pair of overalls in it. And at the same time the state law exempts the boarding house from any privilege tax, if the charges are less than $12.00 per week.

Yes, I contend the cafes are sadly neglected. They are legislated against rather than for. They are made to comply with the law, or suffer the penalty of facing the court or closing their doors, which is right. But it is not right for the law to permit a boarding house to run a cafe in the name of a boarding house and not be subject to the same law as that regulating cafes.

I don't know science and philosophy. I don't know medicine and anatomy. But I do know dirt when I see it. I know that a pile of greasy dishes are not clean and sterile, when washed in warm water. Many ways and methods have been suggested as to cleansing cooking utensils—dishes, etc., in public eating places. There are many ways, but are they practical? It is not reasonable that dishes can be washed by hand and still be sterile. And I believe this method, for the welfare and health of the general public, should, by law, be abolished. Sterilization by means of chlorine or some other high powered germ killer is adequate, but is not practical, because when used strong enough to give the desired results, in a very limited period of time, it leaves an odor that is obnoxious to the patrons. Another point against chemical disinfectants—the average kitchen dishwasher in a cafe is not sufficiently responsible to handle such disinfectants, nor does he have the necessary equipment to keep the solution at an effective strength.

In my opinion and experience there is nothing more reasonably effective and easily obtained than honest-to-goodness clean boiling water. Such boiling water cannot be used when washing is done by hand. Therefore, I recommend that some type of dish washing machine be installed in every public eating place in North Carolina and that this be made compulsory by law.

It may be said that such a law would force an unwarranted expense upon the small cafe operator. It may be said, also, and I believe with more reason and justification, that the contaminated spoon, fork, cup or glass may cause an unwarranted expense upon some poor mortal or mortals, that could have been averted by a safety first program of dishwashing. And if this expense does keep a few out of the public eating business, what of it! There are hundreds of people who go into the cafe business and they go out almost as quickly as they went in—because they knew nothing about the cafe business. They don't know how to cook food or even how to have it done, therefore, they cannot command repeated patronage. They have no knowledge whatever of sanitation.

They go out of business and are in a worse condition financially than when they started.

I believe that every Health Officer in the state, in the interest of public health, should advocate a standard for public eating places that would make it impossible for any fly-by-night, irresponsible person, to go into the cafe business on nothing.

Go with me on an inspection trip of two cafes—first one which will score about ninety-eight points out of a possible one hundred, and, second, to one that will score seventy points, or one point above the limit for closing that cafe.

We are now standing just inside the front door of the ninety-eight place. First, let us observe the condition of the ceiling, walls and floor of the dining room. They will be found tight, sound, smooth, well painted or otherwise satisfactorily surfaced. No cracks, no loose paint or paper, no dirty finger marks or grease or smoke stains. No promiscuous display of unprotected foods.

Let us proceed further into the dining room. As we go along, casually observe the personnel. Have they special dress? Do they wear caps or other special head dress? Are they clean, neat, smiling and alert? Watch closely the movements of their hands about the body, face, mouth, nose and hair. In the high scoring cafe the personnel will show evidence of careful training along these lines.

The next points to observe as we go along will be the cleanliness of the table linen and tableware. Are the chairs and stools free from cobwebs, dust and disfiguring marks? They are.

Now, lets go behind the counter. The score of many apparently clean cafes can be ruined right here. Simply because the general public does not see behind the counter is no reason for neglecting its cleanliness and orderliness. In the particular cafe that we are now inspecting, the drawers, shelves, bins, dishes, silverware, glasses and a few foods will be found, neatly arranged, with no accumulation of dirt, crumbs and unnecessary articles. The floor will be as clean as in front of the counter. So far one hundred per cent. We now come to the wash room. Here we find individual towels and powdered soap, but the hand bowl left in careless condition—off must come a half point for lack of cleanliness. Too bad when a moment's effort would have made the wash room score perfect.

Now, we pass into the kitchen and repeat the same procedure as upon entering the front door.

In what condition are the walls and ceiling, making due allowance for the fact that the same immaculate clean linens cannot be reasonably expected here as was found in the dining room? Such being acknowledged, they are given a perfect score. But the floor is another matter, here we invariably find enough trouble to warrant our deducting another half point from the score.

Ice-box, dishwashing facilities, meat block, cooking tables, cook stove and steam table are found in satisfactory condition. But when we observe the cooking utensils we find we have to knock another one-half point off the score. As we observe the kitchen personnel we find

that the cook's apron and that of one of the "buss" boys sacrificed another half point off the score.

We go from here to the stock room, where we find everything neat, orderly and well protected.

The toilet is clean and the flushing fixtures work properly.

So we step into the back yard where we find a sufficient number of covered metallic garbage cans.

As we go back to the proprietor's desk we find that all the employees have their health cards and that grade A milk is served here in the original containers and the required grade cards are posted.

Our tour of inspection is over and we find this place scored ninety-eight per cent—a most commendable score.

Now let us take a look at the other place where we find everything wrong from start to finish. The dining room has the appearance of the morning after the night before and we will spend little time here. Passing on further into the dining room we notice the table linen has coffee stained spots and other evidence of long wear. The counter and floor back of the counter, bins, shelves, all show evidence of neglect and are in a poor state of sanitation. The wash room is unkempt and untidy. All the individual towels are soiled and no soap at the hand bowl.

It is not necessary to do any real inspecting in the kitchen because we know the same condition, or worse, exists here as in the dining room. The walls and ceiling are dark and dingy with grease smoke. The personnel are conscious of their soiled aprons and the proprietor is trying to make excuse for them and that conditions are not as bad as they look to be. But our score sheet is full and the result shows a rating of seventy per cent—just one point above the closing mark or where the proprietor will have to talk to the judge. The proprietor is surprised and horrified at this grade C posted on the wall of his place. But it is all because of his own negligence.

It has been said, the "Sanitary inspector is the backbone of the Health Departments." If this be true, he has a good chance to prove it in the above case. To teach this man more how to run his place, from a sanitary standpoint, and at the same time win his confidence, is not easily done. But it can be done. And the inspector who hasn't the nerve, tact, and ability to do it, should resign and give the health officer a chance to get an inspector who is worthy of the name.

We are glad to say we are in Winston-Salem, gradually raising our class C to B and A.

To those of you health officers who have a public eating place problem in your own home town, may I suggest that a strict, but practical enforcement of our present state restaurant law, together with an intelligent use of the state score card and a certain amount of publicity will do much to solve your problems.

It is my hope that the ideas I have advanced in this paper, which you were so kind as to include in your program, may be of some service to you.

I thank you.

President Epperson: I think it may be said that this type of service is highly essential but the personnel in many of the health departments

of the state is insufficient to carry on an effective program. Then, too, I am thinking about the wayside eating place.

It is true, of course, that the State Board of Health through its roadside sanitation program has gone a long way, but there are still many places along our highways which the people from the cities frequent that you wouldn't particularly want to eat in. When I go into one of those places I always feel like telling them to give me a hard-boiled egg and a cocoanut because those are the only things they can't get their hands in.

I do think we ought to go farther in that particular, if possible. It seems to me it is a matter that the State Board of Health should give very serious consideration to, because those of us who have adequate personnel and health organizations attempt to regulate this type of business and to operate clean eating places in our respective communities but on Sundays and holidays we get out and we see thousands of our citizens here and yonder picnicking and otherwise and many of them do not stop to think about the type of food or drink they purchase at these wayside stands.

Talk about Grade "A" milk! In those places it is probably Grade "X" milk that you get because it is obtained from anybody who may be willing to sell.

Personally I think that this is really an important problem and it ought to receive free and frank discussion here and I now throw the matter open for general discussion.

Mr. James (Durham Health Dept.): Mr. Chairman, I have used the numerical score card in rating food handling establishments and there exists in my mind certain prejudices against employing this score card for the reason that on the day an inspection is made things may be in excellent shape and as we all know in twenty-four hours after that time conditions may by neglect or for other reasons be greatly changed and there remains there this mark that might appear as a source of embarrassment to the inspector who did the original rating.

In another city not in North Carolina I remember that the Health Department employed a colored card, indicating certain colors for perfection, a rating of 95 or above, other colors for lower ratings. It was found on one occasion that handling of foods displayed in a particular place was unusually bad; the sanitary conditions were unusually bad. The matter didn't fall within my province at that time. I was there on another mission but I felt that it was a reflection on the Health Department and I took the liberty of removing from the wall this card, which had been put up, indicating an excellent rating and so reported back of course to the proper agent of the Board of Health what the conditions were that I found in this particular place.

So I believe that the numerical score card, while it serves a purpose and is probably better than any other system devised up to the present time, it certainly is a source of embarrassment to the inspector who employs this particular means.

The employment of dish washing machines in places where dishes are washed is very fine but I believe in these times of depression it can hardly be put into effect in a great many of our eating places. It might tend to boost the prices of food products handled in those places and

while we will admit that sterilization is of the greatest importance, that food ought not to be handled in dishes that have not been sterilized, there is another matter of very great importance I think that was not mentioned in Mr. Wagner's paper and that is the matter of exposure of prepared foods, butter, etc., handled by hand. I believe that these ought to be protected. Of course, in self-serving establishments there are certain hours when it is necessary for foods to be exposed but there ought to be certain restrictions thrown around the handling of these, at that time. (Applause)

Dr. Sykes (Charlotte): Mr. President, and Gentlemen: I am practically engaged in the same type of work in the city of Charlotte that Mr. Wagner is in this city.

Mr. Wagner's paper has brought out a number of things which are very essential to the public eating place position.

A number of times you will come in contact with eating house proprietors—I am sure you have; I know I have personally—that are shoestring cafe owners. They lose their jobs. They don't call them "positions." When they lose their jobs the first thing they think about is a cheap home-made barbecue stand. The next thing they think they are cafe owners. They think, "I will get rich this way and in a couple of weeks I will be walking down the street and people will say, 'There goes the big cafe man.' "

It is a pitiful situation when the public goes in there with its money and says, "Give me so-and-so and so-and-so for my money." The first thing that approaches you is a filthy linen front. The next thing that strikes you is the personal appearance of the individual himself, his fingernails or her fingernails. They are about this long (indicating) and you can take your comb (which they always do) and scrape out the filth under their fingernails.

You next go around behind the counter, as Mr. Wagner has already told you, and you see a line of cockroaches and vermin of all sorts. There they are running to and fro having a good time at the public's expense. Why? Because the man who goes into the cafe business invariably goes in on a good will proposition.

So it behooves the gentlemen here in session to put something on the statute books of this state that will protect you, each one of you and me, something that says a man must have a certain type of equipment in order to run a public eating place. I back up the gentleman who talked about using steam equipment instead of hand dishwashing machines. He said, however, it wouldn't be a good idea to insist on putting in that expensive equipment now. Why not now? You are going to eat now just the same as you did five years ago when business was good and money was flush. Your health is just as much at stake now as it was during 1917 and 1918 when everyone was paying a dollar and a half for ham and eggs.

So it behooves this body to go on record to protect the health of the public at large with some standardized equipment which will absolutely protect the man and woman who lay down their cold money and are due some consideration.

So again I say let us have some standard law, and standard equipment.

Dr. T. C. Britt (Washington): I didn't hear the paper that was just read. But it occurs to me that there is a neglect of the human factor in this phase of our activity. I examine food handlers from time to time in my own little town. It is a matter of routine for them to come up from time to time.

I think it is a fine thing to standardize the equipment but we should also standardize the physical equipment of the individual, tell him why he is examined and how to protect the public from himself. That it seems to me is the weak point.

It happens that I have been in a number of counties to do work in examining food handlers and the same thing applies there as it does to the marriage certificate, and the teacher's certificate. They come up from time to time and say, "Give me my card," and it is a routine procedure with them, or they think it should be, to get the card. They don't appreciate what that card means, and I think there is an opportunity for health officers to do a good work in instructing the people who come into the office about cleanliness and the human factor in this food business, as well as in giving out teaching and marriage certificates. I think we can improve the attitude of the employers, and the standardized equipment might come later, but with the equipment we have I think we can do very good work if we will instruct those people as to the liability that is incurred from disease in food handlers and those in other eating places.

Dr. J. A. Morris (Oxford): Mr. President, I am very glad that Dr. Britt brought out that point. I can see that the paper last read merged in with the one that was read before because it is useless to have a clean place, and a dirty servant.

Competition causes that condition, the competition of the little bit of a stand that goes into business and take away the patronage of the better quality eating place. What are we going to do about that? Well, now, let's see.

Here some time ago you all remember that there was a certain railroad that wanted to extend itself a little bit. It wasn't allowed to do so because it would make too fierce competition against another railroad and because that other railroad would have to lower its standard. Well, that is a matter of property. Here is a matter of life involved and why can we not have a commission that will regulate competition in such a matter as eating places so that they will be safe for the public? Profits have eaten like rodents into the safety of the public because of that competition and until we can find some way to tear down that competition, just like the railroad is tearing it down, the very lowest standards that they can get by with will be foisted upon the public. (Applause)

Mr. Wagner (closing discussion): As to the matter of competition we in Winston-Salem (I don't know how it is in the other towns of the state) are up against one of the most unfair competitions in the public eating business than can possibly exist anywhere. As I stated in my paper our boarding houses (and we have some big ones) are serving

meals exactly the same as our cafes and hotels and the state law does not cover them. If they charge less than $12 per week for their board they are exempt from everything.

I think that is one of the biggest things, along a competitive line, that we can take up today and include in our state law. In one place the law says any establishment charging less than $12 per week for board is exempt. In the next paragraph it says hotels operating a dining room under the European plan, cafeterias, and other places where prepared food is sold come under the state laws. Well, if that other place where prepared food is sold doesn't mean the commercial boarding house I would like to know where on earth prepared food is sold.

President Epperson: That concludes the program for the morning session. I should like to appoint some committees, a Committee on Resolutions, a Nominating Committee, and a Committee on the President's Address, to report immediately following the technical session this afternoon.

I will appoint on the Resolutions Committee Dr. Harden, Dr. Morris of Oxford, and the Secretary, Dr. Mitchell.

It has been customary I believe to have a Nominating Committee whose duty it is—

Dr. R. S. McGeachy (Greenville): I don't think that has been customary until the last year, which as I remember, was the first time we ever had a Nominating Committee. I should like to move that the Nominating Committee be dispensed with.

President Epperson: That is a matter that is entirely within the discretion of the organization. If it is the will of the organization to nominate entirely from the floor, I take it it is perfectly proper to do that sort of thing. Dr. McGeachy makes such a motion. Is there a second to it? The motion is that there be no Nominating Committee but that nominations be presented from the floor.

. . . The motion was seconded by Dr. Z. V. Moseley (Kinston). . . .

President Epperson: The motion is now made and duly seconded that a Nominating Committee be not appointed and that nominations be made from the floor for President, Vice-President and Secretary. Is there any discussion of the motion? The motion was carried. Adjournment was taken at 12:25 p.m.

MONDAY AFTERNOON SESSION
APRIL 18, 1932

The meeting convened at two-fifteen o'clock, President Epperson presiding.

President Epperson: There are a good many who haven't come in yet but I believe in starting on time and am going through with the program.

I think that this paper of Dr. Easom's is going to be especially interesting to those of you who are engaged in public health work. It happens that the piece of work occurred in the county in which I am

located. Naturally I am very much interested in it. It is quite an outstanding piece of work, I am sure.

I am now going to call on Dr. Easom to present this paper, "Childhood Tuberculosis in Durham County." Dr. Easom! (Applause)

CHILDHOOD TUBERCULOSIS IN DURHAM COUNTY, N. C.

By H. F. Easom, M.D., Sanatorium, N. C.

Durham County is located in the Piedmont Section of North Carolina. Durham is its county seat and the only town of appreciable size in the county. The total population of Durham and Durham County is 68,816 and 23,943 or 35% of this number are negroes. The City of Durham has a population of 53,153, of which 35% are negroes. Of the 15,663 people in the county 33% are negroes.

Durham County is chiefly an urban county, and its chief industries are agriculture, and the manufacture of cigarettes, smoking tobacco and hosiery.

The county and city health department are combined in a very efficient organization headed by a superintendent of health who is assisted by a health physician, a tuberculosis nurse, five white school nurses and three colored school nurses. The department is greatly aided in its work by the local free clinics and the welfare department.

Beginning February 1, 1931, the Extension Department of the North Carolina Sanatorium, working in coöperation with the local school and health authorities, began a tuberculosis study of the school children of the city and county. In the white schools the parent or guardian of every child in school received a permission blank explaining just how the study was to be conducted and requesting that he return the slip signed if he wished his child examined. Each nurse was made responsible for explaining the examination in her schools and obtaining the consent from as many as possible. No consent slips were used in the colored schools. Every child from the first grade through high school was advised to take the examination regardless of his state of health or history of exposure. The study was conducted in ten white county schools, twelve white city schools and seven city colored schools, thus giving a very representative cross section of the population, including whites and negroes, rich, poor and middle class, urban and rural, and children whose nutrition was above par, normal and below par.

Each child was first given the tuberculin skin test. The Mantoux or intracutaneous test was used, giving 0.1 cc. (0.1 mgm.) of a 1:1000 solution of Old Tuberculin in normal saline, containing .25% phenol as a preservative. The solution was made up fresh every week or so and kept on ice when not in use.

The tests were read in forty-eight to seventy-two hours. The edema at the site of injection was the chief guide in judging the intensity of the reaction, and it is usually smaller than the area of redness. An area less than 10 mm. in diameter was a one plus; from 10 to 15 mm. a two plus; above 15 mm. and not showing necrosis of the skin, a three

TABLE IV

RESULTS OF THE STUDY OF THE SCHOOL CHILDREN OF DURHAM COUNTY, NORTH CAROLINA, FOR TUBERCULOSIS

WHITE

Age	Number tested	Number positive reactors	Per cent positive reactors	Number X-rayed	Number lesions		Per Cent showing lesions	Per cent of total number tested having Tb.
					Pul	Tr. Br.		
6 - 7....	735	53	7.2	39		5	12.8	.9
8 - 9....	1062	77	7.3	79		13	16.4	1.3
10 - 11....	1031	147	14.2	110		18	16.3	2.3
12 - 13....	810	144	17.7	141	3	16	13.4	2.4
14 - 15....	632	130	20.5	111	2	6	7.2	1.5
16 - 17....	466	96	20.6	84	1	6	8.0	1.7
18 - 19....	229	49	21.4	35	1	8	25.7	5.5
Total...	4965	696	14.0	599	7	72	13.3	1.8

1 Tr. Br. & Pul.

COLORED

Age	Number tested	Number positive reactors	Per cent positive reactors	Number X-rayed	Number lesions		Per Cent showing lesions	Per cent of total number tested having Tb.
					Pul.	Tr. Br.		
6 - 7....	537	81	15.0	54	2	11	24.0	3.6
8 - 9....	592	115	19.4	93	1	25	27.9	5.4
10 - 11....	596	116	19.5	105		21	20.0	3.9
12 - 13....	416	111	26.4	89	2	6	8.9	2.4
14 - 15....	242	79	32.6	65	1	9	15.0	5.0
16 - 17....	72	35	48.6	27		1	3.7	1.8
18 - 19....	42	17	40.5	21		1	4.7	
Total...	2497	554	22.1	454	6	74	18.0	3.9

plus, and any reaction showing evidence of necrosis of the skin, a four plus.

Next every child with a positive reaction had a careful contact and clinical history taken by the nurse and a general physical examination by the clinician. Following this each child had an antero-posterior and left oblique X-ray of the chest. The health department with the aid of the county, parent-teachers associations, civic clubs and those parents who could do so, paid for the films. The two local white and one colored hospitals volunteered the use of their X-ray equipment and the North Carolina Sanatorium technician made the exposures. The films were taken to the Sanatorium to be developed and interpreted by Dr. P. P. McCain and the findings correlated with the tuberculin reaction, history and physical examination.

The tuberculin test was given to 4,965 white children, this being 50.6% of the total school enrollment. Of this number there were 696, or 14% positive reactors. There were 2,497 colored children tested

and 554, or 22.1% positive reactors. This was 67% of the total school enrollment and practically 100% of those present at the time of the clinic. (See table IV.)

When the white reactors were divided into age groups it was seen that the percentage of reactors was 7.2 in the six to seven year group, and gradually increased to 21.4 in the eighteen to nineteen group. The colored percentages showed a similar rise with age, beginning with 15% in the six to seven year group and rising to 40.5% in the eighteen to nineteen year group. (See table IV.)

The percentage of reactors arranged according to the intensity of their reaction showed that among the whites 80% of the reactors were equally divided between the one plus and the three plus groups, while among the colored the percentage of reactors was lowest in the one plus group and highest in the three plus group. (See table I.)

TABLE I

Number Tested	Number positive reactors	One plus		Two plus		Three plus		Four plus	
		Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
WHITE									
4,965	696	270	38.7	114	16.3	272	39	40	5.7
COLORED									
2,497	554	80	14.4	112	20.2	269	48.5	93	16.7

Distribution of reactors according to the intensity of their reaction.

The positive cases were classified as childhood type and adult type. There was also a large group of cases classified as suspicious on account of a strong reaction and suspicious symptoms or suspicious X-ray findings, or both. It is interesting to note that there was only one extrapulmonary case.

For various reasons we were unable to get pictures on all the reactors. Five hundred ninety-nine, or 85.9% of the positive white children were X-rayed and 7 showed an adult type or parenchymal lesion, 72 showed a tracheobronchial lesion and one showed both. The largest percentage of tracheobronchial cases occurred from six to thirteen years of age and all the pulmonary cases were past twelve years of age. Of all the white children X-rayed 13.3% showed some type of lesion demonstrable in the lungs. Of the total number tested, 1.8% showed lesions. There were 95, or 15.8% suspicious cases.

Four hundred fifty-four, or 82% of the positive colored children were X-rayed and tracheobronchial lesions were found in 74 instances, adult type in six and both types in one case. Sixty cases or 13.2% were classed as suspicious. Of all the colored children X-rayed 18% showed demonstrable lesions. Of the total number of colored children tested 3.9% showed demonstrable lesions.

When the positive cases were classified according to the intensity of their reaction it was found that in the white group 1.8% of the 1

plus reactors, 6.3% of the 2 plus, 22.7% of the three plus, and 38.8% of the 4 plus showed demonstrable lesions. (See table II.)

TABLE II

NUMBER AND PERCENT OF THE POSITIVE REACTORS HAVING TUBERCULOSIS ACCORDING TO THE DEGREE OF THE TUBERCULIN REACTION

WHITE			
Degree of Reaction	Number Cases	Number having tuberculosis	Per cent having tuberculosis
One plus	222	4	1.8
Two plus	95	6	6.3
Three plus	246	56	22.7
Four plus	36	14	38.8
Total	599	80	13.3

In the colored group none of the one plus reactors showed demonstrable lesions. Of the two plus 15.3%, of the three plus 21.6% and of the four plus 25.3% had tuberculosis. (See table III.)

Until the past few years a good deal of importance was attached to underweight as a guide in selecting those children who needed to be examined for tuberculosis. That this is not a safe guide is shown by the fact that out of 155 cases of tuberculosis found in this survey only 14.8% were more than 10% underweight, 78.7% were within the limits of 10% above and 10% below, and 6.4% were more than 10% overweight. If we had only tested those children who were 10% or more underweight we would have only discovered 23 of the 155 cases.

Only one case was diagnosed definitely by physical examination and one other case was classed as suspicious.

Those cases showing demonstrable lesions were advised either sanatorium, preventorium or home treatment. Immediate sanatorium treatment was advised for those having pulmonary type or caseous tracheobronchial glands. There were 70 such cases in this clinic. Those cases showing a lesion strongly suspicious of the pulmonary type were advised further study in a sanatorium. Then there was a group of 92 childhood type cases in whom sanatorium or preventorium treatment was thought to be questionably necessary, depending upon their home conditions. If they were not living in contact with an open case, if they could have their physical defects corrected, if they could get reasonably good food, an hour or so rest every afternoon, and avoid strenuous exercise, they were allowed to remain at home. If the home conditions were such that the child could not receive satisfactory treatment there, then sanatorium treatment was advised for that case also.

One hundred fifty-five cases were classified as suspicious and the treatment advised in this group was the same as in the cases in whom sanatorium treatment was questionably necessary.

TABLE III
NUMBER AND PER CENT OF POSITIVE REACTORS HAVING TUBERCULOSIS ACCORDING TO THE DEGREE OF THE TUBERCULIN REACTION

COLORED

Degree of Reaction	Number Cases	Number having tuberculosis	Per cent having tuberculosis
One plus	59	0	0
Two plus	98	15	15.3
Three plus	222	48	21.6
Four plus	75	19	25.3
Total	454	82	18.0

The follow up work in this clinic was done mainly by the health department nurses. The negative reports were mailed to the parents but the nurses visited the homes of those classified as positive and suspicious and had a talk with the parents in regard to the child's condition and the proper treatment for him. She urged them to take the child to the family physician for the correction of any defects. She also made an effort to find out if there was an open case of tuberculosis in the home, and if so then every effort was made to remove either the contact or the child from the home. The other members of the household were advised to have a thorough chest examination and as a result of this a number of previously undiagnosed cases in adults were discovered. The health department at the time was holding weekly diagnostic adult clinics.

The chief points of interest in this study may be summarized as follows.

(1) 14% of the white children and 22.1% of the colored children in Durham County between the ages of 6 and 20 years are infected with tubercle bacilli.

(2) The percentage of infection increases with each year of age.

(3) 1.8% of the white children and 3.9% of the colored children given the tuberculin test show demonstrable lesions in the X-ray, most of which are tracheobronchial in type.

(4) The stronger tuberculin reaction the more likely the child will have a demonstrable lesion.

(5) Only 14.8% of the positive cases are more than 10% underweight and only one case shows definite physical findings.

Dr. D. R. Perry (Durham): Mr. President, Ladies and Gentlemen: This is a wonderful piece of educational work that Dr. Easom has presented.

He made the statement (referring to chart) that about 51 per cent of the children enrolled in Durham County at the time this survey was made were examined. Then he said that probably 22 per cent of the colored and 14 per cent of the whites in Durham County have tuberculosis or an infection.

Well, there is a lot of speculation in that and a lot of things about which we could argue but it is very interesting. His conclusions I

imagine are drawn from the fact that he has tested at the Extension Department of the North Carolina Sanatorium over 100,000 North Carolina school children.

Another thing that is very interesting is the method of handling these cases after they are found. That is a question that comes up probably with every man who is doing general practice, and the personnel of all the health departments in North Carolina, or of any department. What are you going to do with these patients after you find them? That has been the question all over the state for years: what are you going to do with these adult cases after you find them?

You find them in very poor social and economic conditions. They are very ignorant and hard to handle. So as I say it is very well to outline an educational program but you cannot stop with an educational program. You have to get busy and the person to get busy on these cases in Durham County, just to take Durham County alone, is the health officer.

I was interested in Dr. Easom's suggestions about advising some of these patients to go to the sanatorium. He says 70 cases were advised to take sanatorium treatment. It would be interesting to me to know how many really got into the sanatorium. He advised 92 cases to take sanatorium or preventorium treatment, and 55 cases in the survey were advised to take home treatment.

I just bring these questions up. I have no solution to offer, nor any suggestions, except to say it is a hard thing to handle these cases. But I do contend if these patients are found and you can put your finger on them you know where they are. You have gone that far along, to know that they are there. We didn't know they were there until Dr. Easom came in and did the work.

I wish somebody could suggest a method of handling these cases so that ten, fifteen, or twenty years from now we can go back to the records and see how many of these people came down with active pulmonary tuberculosis, how much expense was involved on the county of Durham or the state of North Carolina to take care of these patients, how many contacts have contracted tuberculosis from these people.

Those are the things that really worry you when you get to thinking about this proposition. I should like to see this survey extended so as to compare these figures of 14 and 22 per cent with the figures for the state as a whole, the 130,000 cases that Dr. McCain probably has at the tip of his tongue right now. I should like to see how Durham County compares with the state as a whole.

I have one suggestion to make as to these 155 cases that are positive. Who in the county of Durham is, as you might say, a fixed citizen there? It is true that doctors change from one locality to another occasionally. Who is it that can fix these cases and tie them to anybody better than the family physician? When you go around and advise people to see the family doctor, and you are a doctor yourself, I don't know what the reaction is. I know it is hard to get them to consult their physician. But I don't know what really goes through his mind when you tell him that or when the nurse tells a sick person to see a

doctor. I don't know whether it soaks in or not. But I know it is hard to get those people to the family doctor. But in connection with these 155 cases, the only person you can tie them to who is fixed in the county is the family doctor. The personnel of the Health Department changes. The nursing personnel of the Health Department changes. The people themselves move from one county to another. A lot of these people were found and then they moved. They may be tenant-farmers or millworkers, working in the hosiery mills or the cotton mills or the tobacco factories. They change around a lot but I don't know anyone who it is better to tie these people to than the family physician.

That is just a suggestion. In admitting these people to the sanatorium, for instance, I have often thought a good way to tie this person up to begin with to the family doctor would be to get the family doctor to sign an admission blank, or if the case is going to a preventorium, to get the family doctor to sign the blank that admits him, or if it is a home case it is a very good thing of course to have a nurse come by and tell them what to do. When it is free advice, it goes in one ear and out the other. It has very little effect. So it is a very good idea to get those home treatment cases into the hands of the family doctor. And I want to say just a little bit about the family doctor in a minute.

When he gets there of course he has to handle the case. But if you can do that it is so much easier to handle these cases, so as to prevent them developing the pulmonary type of tuberculosis ten or fifteen years from now.

The nurse and the health officer and the clinic physician are very anxious to get these people looked after, to get something to mark down on their chart—"apparently arrested," "cured," or something. They like to get something on that chart two or three years from now.

The question comes up of course as to what you are going to do with that case after he gets to the family doctor and what is the family doctor going to do. It comes around to this point: when we have a case of diphtheria not only does the family physician but the health department officials, the nurses, and everybody else go wild. They give toxin-antitoxin, antitoxin, and everything else. That is something that is acute. What happens when you find a case of pulmonary tuberculosis? Well, it is taken as a matter of course. It seems like nobody gets excited except the man who is sick. You tell him he can't get well or he is too sick to go to the sanatorium and he gets all up in the air, but if he is a good case and you want him to get well and want him to go to the sanatorium he does'nt get excited either. When a case of diphtheria is discovered you give the Schick test and do everything possible to find every suspect and every person that is a carrier. You make cultures of the throats. You go through the schoolroom and culture every kid's throat in the school when you find a case of diphtheria. But when you come down and find these same reactors here you just mess along. It seems like you lose interest. The family doctor is not interested and the only person who is interested is the health official. And if he runs into a case of smallpox or diphtheria he forgets all about tuberculosis and never gets back probably to finish up the job.

So it is a serious proposition.

A question came up in Durham not long ago. A patient came into the hospital with a case of tuberculous meningitis. It was a charity case of course. The man on service let the kid die. He couldn't do anything else in that case. About two days later the mother was asked by the interne to come out to the hospital and to bring all of her children and her husband with her; he wanted to see them. That interne did a piece of work in that family that, if it had been a case of diphtheria, would have been checked up on before the youngster died. But the man on service made no suggestion to the interne about doing that. This was a young doctor interning at the hospital and he carried through this study to find other cases in the family that might have tuberculosis. There were six children in the family. Four of them reacted to the test and the mother was strongly positive. The father reacted only slightly. And the interne found out those things.

I just bring that out to show the importance of all these deaths we sign certificates for as a matter of course, and the families and contacts are never paid any attention. We have lots of that in Durham besides these who have been discovered. Lots of families weren't even represented in these school kids. Only about 51 per cent were tested. So you see what we have to contend with now, even after this study.

This is a wonderful piece of work. The most important thing, of course, is to find these cases, and the way to find them is by the method that Dr. Easom went through. I wish he would go a little further into detail for the information of some of you and tell you how this was carried out, the expense attached to it, etc., so that you can see it is not such an expensive proposition. That is one point that I believe he can clear up, because when you look at this chart and hear him talk you think it is an elaborate expensive proposition.

I still hope Dr. McCain will tell you how easy it is to get that done and to do it, yourself, so that you can do this work without having to go to a state sanatorium or go outside and get somebody in there to do it in a wholesale fashion. Do it all the time. Do it the year round. Check up your tuberculosis cases just as you do your diphtheria cases, just as you would if you had a smallpox or typhoid epidemic, or anything else. Find out about these cases and do it all the year round because it is very simple and very easy to check.

Dr. P. P. McCain (Sanatorium): Mr. Chairman, I am very glad Dr. Perry brought out the importance of the family physician in the study of tuberculosis. In our state clinics we have endeavored to make these school children clinics demonstration clinics. It is not desirable, even if it were possible, for any state organization to take over the whole problem of tuberculosis either for diagnosis or for treatment, and we have made a special effort wherever we held a clinic to try to sell the idea to the local school and health authorities and the medical societies.

We feel that if we can use a local X-ray machine and demonstrate to the doctors in that community that the local machine is a good machine for making chest pictures, and if the local X-ray man doesn't already know the best technique for taking chest pictures we can demon-

strate to him the value of the best technique and can also show him something more than he already knows probably about the interpretation of X-ray films, we have done something permanent. After we have gone if the doctors are sufficiently interested they will send their cases to that X-ray man.

We have been exceedingly fortunate in being able to use the local X-ray machines wherever we have been, without any charge whatever.

Dr. Perry mentioned the matter of cost. Of course, we have three clinic physicians who are paid a regular salary. The Extension Department of the Sanatorium furnishes the clinician. We pay his salary and we pay his traveling expenses to and from the county. The county has to provide the X-ray machine. The county has to furnish the nurses necessary to help with the clinic and they have to pay for the films. We buy the films in large quantities and get them for about eighty cents per pair of 11 x 14 films for each child, making one antero-posterior film and one oblique film.

We can almost always arrange to get this money through the Kiwanis Clubs or Rotary Clubs or ladies' societies of various kinds, local tuberculosis seal sale, parent-teachers associations, and the very fact that the local people exert the effort to raise this money helps to fasten their interest and helps to make your work permanent.

Dr. Perry asked about the percentage found in Durham County schools as compared with the percentage found throughout the state. Our percentage for about 130,000 cases in the state is 15 per cent positive reactors for whites and 18 per cent for colored people, as compared with 22 and 14.

We feel that the value of these studies depends mainly upon finding the cases that are infected and arousing interest in the parents and in the health authorities and in the family doctors and the teachers, and seeing that the general resistance of these children who are given the tuberculin test is built up to the point where they will not develop tuberculosis later. If a child who is infected but who is not yet diseased with tuberculosis has his defects corrected, any other disease cured, has the right sort of habits, gets the right sort of nourishment, is placed in the right sort of surroundings, and particularly if he is not further exposed to constant infection from an open case of tuberculosis, he should never develop the disease.

So that it is of course very important to find these cases that have definite disease, but that is not the main value of the clinic at all. Only from 15 to 18 per cent, and 14 to 22 per cent, in this case, have the infection, whereas 1.8 per cent and 3.9 per cent have definite disease.

You can do more good by preventing the 14 and 22 per cent from ever developing the disease than you can by treating the 1.8 and the 3.9 per cent. Of course, that is important, and it is especially important to find the people with pulmonary lesions who are many times open cases and are dangerous to the other children in the school. (Applause)

President Epperson: Thank you, Doctor.

Is there further discussion? We will be very glad to have more discussion of this paper. It is a very important paper, I think, and we would like to have it fully discussed.

PRESIDENT EPPERSON: The next paper on the program is by Dr. Symington, Health Officer of Moore County, and is entitled, "Some Diseases of India and North Carolina."

Dr. Symington! (Applause)

DR. J. SYMINGTON: Mr. President, I count it an honor to be asked to present a paper to this meeting.

It was difficult for me to select a subject on which to write and this one was given me. I have selected three subjects. On any one of these subjects a paper might be written, an extensive paper, but I have curtailed my papers to what would be about the time occupied for an ordinary paper.

. . . Dr. Symington then presented his prepared papers entitled "A Case of Epispadias," "Intestinal Vincent's Angina," and "Kala-Azar." . . . (Applause)

A CASE OF EPISPADIAS

By DR. J. SYMINGTON, Carthage, N. C.

Epispadias is defined as a "congenital defect in the penis in which the urethra opens on the dorsum of the penis." Hypospadia is "The congenital opening of the urethra on the under side of the penis. It is "also an opening of the urethra into the vagina."

Female epispadias is a fissure of the upper wall of the female urethra. The 20th Century Practice of Medicine states that "In hypospadias the anterior and some of the lateral urethra walls are present and indicated by a furrow. The inferior walls are absent from the enternal orifice to a greater or less extent backward; the urethra thus opens well within the vagina. Epispadias is not mentioned in the 20th Century Practice of Medicine published in 1895. "An American Text-book of Surgery" 1899 states "Epispadias is an absence of the upper wall of the urethra and is much rarer than hypospadias. It may be extensive in which case the opening of the urethra is close to the pubes, or there may be a congenital absence of the pubic symphysis. An operation is often more troublesome and less successful than that used for hypospadias."

Goepp defines epispadias as a malformation in which the urethra is partially or wholly exposed on the upper surface of the penis.

Genito-Urinary Surgery and Venereal Disease, by White and Martian, 1899 states, "In this deformity a portion or all of the roof of the urethra is absent. The canal being represented by a furrow traversing the middorsal aspect of the penis. Rare in all its forms. Epispadia is often attended with incontinence of urine, though when the posterior urethra is perfectly formed, and there is no separation of the pubic bones micturition may be accomplished normally.

THE INCIDENCE OF EPISPADIAS

A letter from Charlotte Medical Library states that epispadias is very rare and they have no instance of a reported case in North Carolina. One surgeon who examined 60,000 patients found three cases of hypospadias, but no case of epispadias. Hypospadias though rare is believed

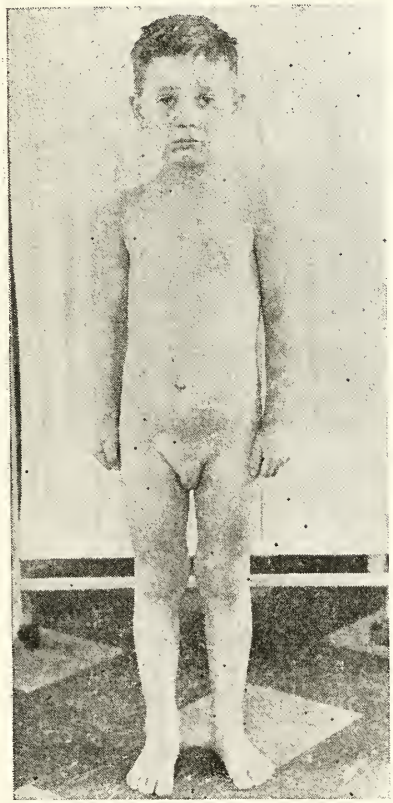
to be 150 times more frequent than epispadias, and it is also stated that there are probably not more cases in this country than would give one case for each State in the union. I found one case of a similar nature in India, but there were other congenital malformations present which as far as life was concerned were more serious and the patient only lived a few days, the case being considered inoperable.

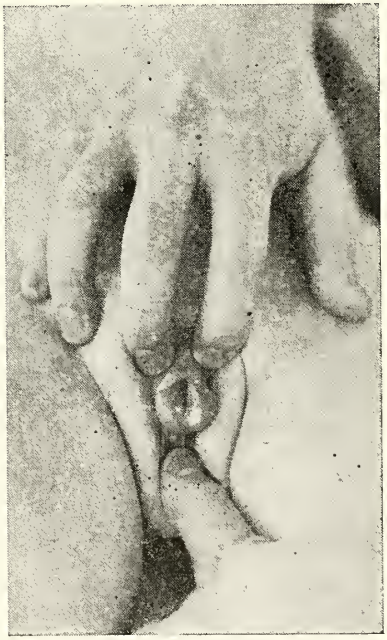
HISTORY OF THE CASE

Name, F. E., age six years old, living with aunt, the father supposed to be in S. C. The mother age 25 years, died two years ago with pneumonia. She had goiter all her life. Grandmother died with cancer of the liver. She was confined to bed for three weeks before death. Grandfather died with heart trouble. The other grandfather died with abscess in the head. Grandmother is still living and in good health.

The mother gave birth to three other children which seem to be healthy, all girls.

This case lived about fifteen miles from my office, the last mile or two of the distance being over a very bad road. The boy's eldest married sister reported to me that her little brother constantly wetted the





In this case the two testicles are present and quite well descended. The supratesticular tissue is abundant as can be seen from the photograph. The glans is large in comparison to the rest of the penis. The dorsum is lacking and there is a furrow instead of a canal. The boy himself seems otherwise normal and bright.

bed at night and that medicines seemed to have no effect in stopping this; also that she had learned that we had sent some children to be circumcised on account of their having the same trouble, and wondered if her little brother needed circumcision. The long distance, the bad road, the constant calls for my services during this time of depression tempted me to write a prescription for the treatment of the boy's incontinence, but finally I decided to go out and make an examination especially as I had some other work in that direction. The result was that on examination this congenital malformation was discovered. The sister and the woman in charge of the boy were informed accordingly. They were also told that medicines were useless for a cure of the condition and that an operation would be necessary. The Sandhill Shrine Club, on being informed of the case, offered to bear the expense, and the boy has been placed in Moore County Hospital for operation.

IMPORTANCE OF EXAMINATION

If no examination had been made and medicines administered under the supposition that this was an ordinary case of incontinence the patient's condition might never have been discovered nor arrangements made for operation, and the cure of his epispadias. This examination resulted also in the discovery of a case of this very rare deformity, the incidence of which has already been given.

I have gone into some detail in this matter as it was my aim to emphasize the importance of examination in all such cases.

I am indebted to Dr. Monroe of Moore County Hospital for the photographs and for some of the statistics on epispadias, and to the Charlotte Medical Library for bibliography notes as given here.

BIBLIOGRAPHY ON EPISPADIAS—1921-1931

Blair, V. P. Hypospadias and epispadias indications for the technique of their operative correction. Tr. South. S. A. (1929) 42:163-165. 1930.

Cabot, H. Plastic operations. Proc. staff meet. Mayo Clinic. 5:315. Nov. 5, 1930.

Cecil, A. B. Treatment of case of male epispadias. S. clinics North America. 8:1351-1356. Dec. 1928.

Deming, C. L. Epispadias in female, transplantation of gracillic muscle for incontinence or urine. J. A. M. A. 86:822-825. March 20, 1926.

Davis, D. M. Epispadias in females; surgical treatment. Surgery, Gynec. amd Obstet. 37:680-696, Nov. 1928; abstracted J. Urol. 20:673. Dec. 1928.

Lower, W. E. Epispadias in women, report of case. J. Urol. 10:149-157. Aug. 1923.

Macewen, J. A. C. Case of true Epispadias, Brit. M. J. 1:454. March 7, 1925.

Mullen, T. F. Epispadias in male. Northwest Med. 24:63-67. Feb. 1925.

Muschat, M. Case of complete epispadias associated with incontinence of urine cured by operation: four additional cases. J. Urol 18:177-185. Aug. 1927.

Rockey, E. W. Repair. Surgical Clinics of North America, 8:1503-1509. Dec. 1928.

Sexton, W. G. Epispadias in women; case report. J. Urol. 18:663-666. Dec. 1927.

Thomas, A. K. Epispadias. Brit. M. J. 2:985-986. Nov. 26, 1927.

INTESTINAL VINCENT'S ANGINA

(Intestinal Spirochetosis)

I have chosen the above title because of a case of Vincent's Angina recently discovered by us, showing the presence of Spironema vincentii, and the bacillus fusiformis in the feces.

The specimen was sent to the State Laboratory of Hygiene with the request that it be examined for Vincent's Angina. The presence of the above bacteria was proven. Dr. Shore points out in a letter to me the importance of this case, and the finding of these bacteria in the feces as being unique in his experience. Dr. Shore we all admit to be one of the leading bacteriologists of the country.

The history of this case is as following:

N. G., Carthage, N. C., col., age 32. Married in 1919, has one child ten years of age living, born in 1922. One dead at eleven months. Born in 1920.

Patient had an operation for pus tubes in 1923 in a city hospital. Tonsils removed in 1931. Sinus operation in both nares, 1931. Tonsils were ulcerated and patient was informed that her tonsils had poisoned her system. Sputum and stools were never examined to her knowledge. Swabs from throat and gums never taken as far as the patient was aware. Pain over right kidney, liver, colon and lower lung region developed some time before tonsils and sinus operation, but the operation did not relieve the pain. Leucorrhea also present. We sent a specimen of feces and this was examined by request for Vincent's Angina and was found positive. The patient has had three Neo. injections. The first injection was given on March 23, 1932. The pain has ceased and the treatment will be continued.

INCIDENCE

In India and other tropical countries the disease is generally believed to be more common, and also more obstinate and rebellious to treatment, than in colder climates, including that of North Carolina.

The Charlotte Medical Library writes in answer to my inquiry for statistics on April 8, 1932. "As for Intestinal Vincent's Angina I can not find a reference. Dr. Gage had a case some time ago that he thought was Intestinal Vincent's Angina but he was not sure. He said that the symptoms were so confusing that it was almost impossible to be sure of it."

Sanez, A. Pure intestinal spirochetosis. Anales de la Facultad de Medicine, Montevido Franc 10:621, 1925.

Sanez gives several colored plates showing the findings in a case of pure intestinal spirochetosis that for 11 years had resisted vigorous treatment based on mistaken diagnosis. Sanez says that when he saw the spirochetes swarming in the stools "it opened up a new world to him." The benefit that followed the first injection of neo-arsphenamine showed that he was on the right track. The cure was completed in two weeks and has persisted for ten months. The same spirochetes were discovered in a dental abscess in the patient. Sanez's map showed that this spirochetal "Dysentery" has been reported from almost every country, except Egypt, Mexico and Great Britain. The Burri and the

Fontana—Tribondeau seem to be the best method for detection of the spirochete. Experimental inoculation has never succeeded to date, he adds. Tentative arsenical treatment should be given on mere suspicion of a spirochetal origin for diarrhea or dysentery.

Vincent's Angina is described by Dorland, 1925 as "A diphtheroid throat affection with inflammation and ulceration of the tonsil and usually without constitutional symptoms. It is caused by Bacillus Fusiformis with which there is usually, but not always, associated a spirillum (Spironema vincentii) called also Plaut's angina, pseudomembranes a.m. and ulceromembranous a.. Infection may occur in other parts of the body and it has been suggested that the term Vincent's disease or Vincent's infection be used." The other part of the body where the disease occurs are not mentioned by Dorland. Thompson in his Practice of Medicine in 1900 states that no specific microbe is found in tonsilitis, but that the streptococci and pneumococci are often present. As Thompson was one of the finest on practice of medicine of his day it is evident that not much was known of Vincent's Angina in 1900.

Taylor in his Practice of Medicine in 1925 states that Godidby found the Bacillus fusiformis and spirochetes among troops in France and in the English camps in cases of ulcerative stomalitis. It will be noted that these are the same as are present in Vincent's angina. It attacks those who are in ill health or badly nourished." This is in line of the central thought of food in this convention. Taylor further describes a typical case of Vincent's angina beginning with redness and swelling at the free margins of the gums resulting later in ulceration extending down to the periosteum and superficial necrosis of the jaw." "The lips and cheeks may also be involved." Cervical glands may be swollen but no mention is made of these bacteria occurring in the intestines.

Stitt states however "That in man these organisms may produce other than local lesions of the mouth and throat. They have been reported as present in ulcerative processes of the mucous membrane of the rectum and genitalia, in ulcer of the skin, abcesses of the lymphatic glands and it is quite possible that they are indentical with the spirochaetal organisms found in bronchial spirochetosis." Stitt does not state however in which countries of the world they have been found in other parts of the body.

Diagnosis was arrived at through the history of the case and the present condition of the patient, the patient had diseased tonsils which were removed, the sinus trouble, the pain over the lower lung region with very little, or no expectoration, pain over the liver and abdominal regions and the presence of leucorrhoea; the absence of typical symptoms of any other disease and finally the failure of operations to remove the pain. Spirochetes might possibly have been found in the sputum and vaginal secretions, but a positive diagnosis was confirmed by the finding of the spirochetes in the feces.

I brought up this case because evidently intestinal Vincent's Angina or intestinal spirochetosis can occur in North Carolina and so far we have not found any other reported authentic case. It might be that the presence of spirochetes or fusiform bacilli is not looked for until an ulceration has been proven to exist. It is important in dealing with this

disease not to overlook any other disease that might be associated with or underlying Vincent's Angina such as diphtheria or syphilis.

KALA-AZAR

Kala-azar is the name of a disease now known as Leishmauiasis. It is an Indian name, Kala meaning black and Azar meaning fever. Black fever. Azar is rather a local name for fever, buchar being the more general Hindustani name used for fever throughout India.

It is called Black fever because it turns the already dark skin of an Indian black, the cause, it is believed, being the accompanying anemia, plus the accumulation of dirt and scales on the skin of the patient as he becomes too sick and indifferent to bathe himself. Ponos is a name given to infantile Kala-azar or Mediterranian Kala-azar now known as Leishmausasis infantum or Leishmania donovani, which is the same as Leish maniasia. Leishmaniasis was first called Kala-azar because of its discovery in India, and the etiology of the disease after strenuous research being discovered in India by Leisluman, Donovan and others.

SYNONYMS

For India Kala-Azar, Dum-dum fever. Tropical Splenomegaly.

For infantile Kala-Azar—Splenicanemia of infants, ponos.

For Eastern Cutaneous leishmaniasis, Oriental sore, Briskra button, Bagdad boil, Bouton d'orient, Aleppo boil, Grameloma endemicum.

For Tropical America cutaneous leishmaniasis, espundia, Blubas braziliana, Uta, Forest Yaws.

HISTORY

Great men in the British or Indian Medical Service in India battled over the history and etiology of this disease. From 1869 when some of these authorities first became acquainted with this very fatal disease till 1903 when Leishman reported his finding the parasites in an infected rat and noted the similarity to those found in the spleen of a soldier who died in 1900 at Netley hospital of Dum-dum fever. At one time Kala-Azar was supposed to be a specific disease of assam. Its etiology was confused with chronic malaria by such great men as Ross, Rogers and others.

With ankylostomias's by Giles.

With mall-a fever by Bentley.

With Splenomegalies by Sonae.

With Cachexia by others.

With chronic malaria by others.

Leishman's discovery of the parasites occurred in 1900-1903.

Donovan's discovery about the same time. 1903.

Wrights of Boston similar tropical ulcer parasites in an Armenian girl.

Brentley's followed.

Pinese discovery disease in Italy in 1905.

Nicolle discovery disease in Tunis.

Others discovery disease in different parts of Mediterranean.

DISTRIBUTION

It is much more wide spread than at first supposed.

It is endemic in many parts of India, especially Assam. It is found in Ceylon, Indo-China, the Philippines and China. In North Africa, Egypt, Sudan, Tunis and Algeria. In the Mediterranian, Sicily, Crete and Malta. In Europe, Greece and South Italy.

ETIOLOGY

Parasite—Leishmania, Donovani.
Family—Trypanosomidae.
Genus—Leishmania

3 Species
1. Leishmania Donovani = K.A.
2. Leishmania Infantum = I.S.A.
3. Tropica = Or. Sore.

Leishmania-Donovani is the causative agent of India Kala-Azar.

Leishmania infantum is the causative agent of Mediterranian Kala-Azar.

Leishmania tropica, of tropical or oriental sore.

Leishmania americana, of American varieties of tropical sore, Espandia, Uta in Peru, Forest yaws, etc.

Leishmania brazilinesis probably causes South American leishmania.

Napier of London and Muir of Edinburgh published their book on Kala-azar in 1923 and did much of the pioneer work connected with Kala-azar.

Patrick Manson, later Sir Patrick Manson who is now known as the father of tropical medicine mentions in his book published in 1898 Kala-azar as being a very deadly disease prevalent in Assam and other districts of India and commencing in North Bergal in 1887 it crossed the Bramapuitra into Assam and extended its area depopulating whole villages in its gradual but steady advance.

SYMPTOMS

Symptoms as given by Low and Bentley are: recurring remitting fever often with a double rise in 24 hours uninfluenced by quinine. These are the same as found in my cases.

Enlargement of liver and spleen, cacheia, anemia, emaciation. Tendency to hemorrhages, ulceration and dysentery. Diarrhea and sweating at nights.

BLOOD EXAMINATION

Anemia, leucopenia. Tho. L. Donovani have been found in the blood from 23 to 24 per cent of cases. For diagnosis spleen puncture remaining the most reliable method and liver puncture in some cases. Blood culture in N. N. N. medium. Culture have been made from peripheral blood and from the urine.

Treatment. Intravenous injections of antinmonium tartrate, also stibamin glucoside.

Blood tests. Napier's aldehyde or formal-gel test, etc.

Prognosis. Since the discovery of the above treatment favorable. Formerly there was a mortality of about 90 per cent. Now with the Neo. treatment the recoveries number about 93%.

Prophylaxis. Almost every insect known to entomology has been suspected of being the carrier of this dread disease, the flea, bug. mosquito, etc. While it is believed by some authorities that several insects can carry Kala-azar the most recent and important discoveries incriminate the sand-fly. The phlebotonm argentipes is now known to be the great carrier of Kala-azar and the phlebotomus papa-tosii to a lesser extent.

With separation of infected patients from the general populace, with incessant war on the breeding places of the sandflies. With the use of netting though this requires a very fine mesh and hampers circulation of air and with treatment by antmomy tartrate we now know how to deal effectively with one of the most terrible and fatal diseases human flesh is heir to.

There are three phlebotomi in the United States, probably all of which are possible carriers of Kala-azar. For widespread epidemics Kala-azar requires high humidity and though not beyond the latitude North Carolina at present has too low a humidity for epidemic K.A. The occurrence of the cutameous leishmaniasis and also K.A. may however increase with the increased mingling of the people of the Mediterranean, South America and the Orient with the inhabitants of this country.

REFERENCE

Sir Patrict Manson (the late).
Rogers.
Ross.
Muir.
Bently.
Napier.

President Epperson: This paper is to be discussed by Dr. Sisk, of Rockingham.

Dr. C. N. Sisk (Rockingham): Mr. Chairman, Ladies, and Gentlemen: I am very glad to know that up until this time this disease, the third subject that Dr. Symington has discussed, has not reached North Carolina. I believe if I were going out to search for it, from the names that he has given here, I would search among the botanical gardens of western North Carolina. (Laughter)

The condition of epispadia, or hypospadia, Dr. Symington has told us is so extremely rare that we shouldn't expect more than one case from each state in the Union. As Dr. Symington has found the case for North Carolina in Moore County (laughter) I am hoping that the next one doesn't occur in the adjoining county of Richmond. (Laughter)

Along that line I believe there is an important condition to be considered from the public health standpoint and that is phimosis. Doubtless many nervous conditions among school children are a result of phimosis. In our examination of school children I think we should,

in the first place, examine all male pupils for phimosis and consider it of major importance, equally important with tonsils and other conditions that are given credit for retarding the progress of the child in school.

Vincent's angina is something that has been of interest to us chiefly since the war. It became popularized as trench fever. It doubtless was spread among our population by the return of the soldiers from France. Very likely four out of five pink toothbrush cases could be demonstrated as showing the presence of Vincent's organism. It has been demonstrated in abscesses of the lung and other parts of the body and I believe that Dr. Symington is to be commended on this pioneer work he has been doing in demonstrating the presence of this spirochete of Vincent's disease in the feces. From his description of the symptoms in this case we see it every day, some obscure pain in the chest, abdominal regions, and I have no doubt but that in many cases if we were to examine the feces for Vincent's organism probably we could relieve many otherwise undiagnosed conditions.

I believe Dr. Symington stated that this particular case did not clear up after having a tonsillectomy until the administration of sulpharsphenamine for the Vincent's spirochete. I think we should follow this subject up closer in our work and ask Dr. Shore to examine some feces specifically for the Vincent's infection. If we do that we possibly will find that many of these conditions are a result of this Vincent's infection. (Applause)

President Epperson: Is there further discussion of this subject?

Dr. D. R. Perry (Durham): This spirochetal infection that the Doctor has brought out here is interesting and I should just like to ask him a question. He has examined a lot of these ex-service men. We have examined them and we find a great deal of pyorrhea and what you call "trench mouth." Of course most of these men at the present time are asking for adjusted compensation since this new law was passed. When you say "trench mouth," right away he has a disability he thinks and it is pretty hard to treat that stuff because those fellows don't have any money and the Government can't connect this "trench mouth" with their present disabilities or their service-connected disabilities. They can't find it out or they have no record of it maybe and it is pretty hard to get those men corrected, and as soon as you call it "trench mouth" he knows that he got it in France. He doesn't think that he could have contracted it since he returned.

So it is a difficult proposition to handle.

To follow up those cases, we send them to a dentist because there is a lot of pyorrhea, along with a lot of tartar around the gums. It is hard to treat those cases by just giving them neo-arsphenamin. The dentist will come back at you and say, "Oh, ninety per cent of the people have an infection," and naturally they have me all riled. I say when I am told that, "I don't believe that is true."

After making about 25 or 30 cultures I found that a whole lot of stuff was there where we didn't even suspect it. We got positive smears, both spirochete, and fusiform.

I was wondering how prevalent this thing was and how much infection you must have before you get symptoms.

The Doctor's gastrointestinal case of course is very interesting because we haven't been looking for that so much as we have for these other conditions, the gums, etc.

We see a lot of abscessed lungs following anesthetics and we attribute most of those things to this same organism. But, as a public health situation, there is a prevalence of it and we are interested in the preventive side of it. Is there any particular treatment that we can advise in these patients besides neo-arsphenamin and the dentist? And the fact of it is the dentist won't do much for him because he contends it is so prevalent. That is the thing I had in mind.

President Epperson: Is there further discussion? If not, we will ask Dr. Symington to close the discussion.

Dr. Symington (closing discussion): To answer Dr. Sisk's question or his statement about phimosis, it was because of our method of examining for phimosis that we were led to discover this case of epispadias. We have made a practice of examining every male child in the school and in our pre-school clinics for phimosis. It is not on the school card. It should be.

We find a great many children suffering from phimosis. In one clinic, a colored clinic, every child we examined that day had phimosis. That was in Southern Pines, Moore County. That was the greatest number we ever came across in one clinic in the whole county. It was simply because we had had this method of examining for phimosis that that woman, that elder married sister of this little boy, in the case of epispadias, came to my office and said, "Does my little brother need treatment, circumcision, for phimosis? I wish you would examine him."

Well, in these times of depression when appropriations have been cut for transportation and gas, there was a great temptation to say, "Go to your private doctor. I will have nothing to do with it." This was fifteen miles away. But I went and, strange to say, away out there in the forest was this case of epispadias.

I think Dr. Sisk's suggestion that we examine for phimosis is very very important.

Dr. Perry asked about trench mouth and pyorrhea. We find a great many cases of alveolar pyorrhea with Vincent's angina. I described one case, how it went down, even to necrosis of the bone. As they come into your office if you will follow the practice of examining the gums you will find that many of these cases of alveolar pyorrhea are Vincent's angina.

I remember one very serious case also of a young man with his left tonsil almost ulcerated away. It looked like septic ulcer. I took a swab of that and it was Vincent's angina. He needed neo-arsphenamin injection and was given it.

You ask about the treatment of Vincent's angina, which looks like alveolar pyorrhea. The local treatment is to apply a solution between the teeth and the gums of neo-arsphenamin, a local application, and also give intravenous injections of neo-arsphenamin.

Thank you. (Applause)

PRESIDENT EPPERSON: We are now privileged to hear a discussion of a problem which I know everyone in this Association is intensely interested in. Mr. W. D. Riley, representing the United States Public Health Service, is with us and has agreed to make a talk on the importance of syphilis as a public health problem.

Mr. Riley! (Applause)

MR. WM. D. RILEY: Mr. Chairman, Ladies, and Gentlemen: I am not sure just why I have been honored with a place on this program today. Be the reason what it may I have been asked from an altitude of five and a half feet and at the rate of about 150 words a minute to try to interest you for about a quarter of an hour.

When your esteemed President, Dr. Epperson, asked me to appear on this program today, which request was put in the form of a command by Dr. Hamilton, I was given carte blanche as to the subject. Knowing my own limitations it was not very difficult for me to select a topic.

The subject of this paper falls under two general headings: first, the importance of syphilis as a public health problem, and, second, the basic elements of a syphilis control program.

This request for my appearance here today came just a few days ago. The paper was written hurriedly. I therefore make no apology either for its contents or its continuity.

THE IMPORTANCE OF SYPHILIS AS A PUBLIC HEALTH PROBLEM AND THE BASIC ELEMENTS OF A SYPHILIS CONTROL PROGRAM

By WM. D. RILEY, Regional Consultant,
U. S. Public Health Service

The gravity of any communicable disease in its relation to public health depends upon its degree of prevalence, the facility of its transmission, its morbidity and mortality, and the possibility of its prevention and cure.

In measuring, by these criteria, the relative importance of public health problems, syphilis ranks second to few among those diseases which seriously affect life, health and happiness. Because of the widespread distribution of syphilis, its devastating effects upon the human race, the difficulties and cost of treatment, the fact that it oftentimes reaches back into the last generation or forward into the next, so that it becomes, like tuberculosis, a familial disease, and the lowered economic efficiency caused by mental and physical handicaps resulting from untreated or imperfectly treated cases, some authorities believe that it ranks first in importance in the field of public health.

For nearly twenty years we have been struggling to find a solution of this problem. Many studies have been made and many circuitous routes have been travelled in the hope of discovering its real magnitude. While much progress has been made, we are still far from being able to accurately measure its size, and still far from knowing the whole truth about syphilis as a public health problem. Incomplete as the informa-

tion that has been gathered regarding this disease may be, it has, however, been enough to justify the opinion that it constitutes an economic liability and a social menace.

The incidence of syphilis in the United States is not definitely known. Surveys made by the Public Health Service and others in recent years indicate that there are no less than four cases per 1,000 population, both white and colored, constantly under treatment or observation. The actual prevalence rate for syphilis is undoubtedly much higher. Studies of syphilis prevalence among inmates of insane hospitals throughout the country indicate that the admission rate varies between ten and fifteen per cent. In a few studies made among selected white groups the prevalence rate appears to be somewhat less than ten per cent. For example, in a syphilis control project now being carried on among industrial workers in a bordering state, 104 or approximately 6 per cent of 1,883 white employees examined, were found to have syphilis. The rate for the negro employees of that plant is five times higher than that for the whites. Of the 388 negroes examined, 116, or 31 per cent, have syphilis.

There have been no prevalence studies carried on among the general population of North Carolina, so that it is not possible to even estimate either the incidence or the prevalence rate for syphilis in this state. However, the number of cases of syphilis reported in any given period in the last ten years exceeds the number of cases of every other communicable disease reported, with the exception of whooping cough, and, in some instances chickenpox and measles.

In a special syphilis prevalence study and treatment control demonstration among an unselected group of negroes, of all ages, begun in Pitt County about two years ago, a total of ten thousand Wassermann blood specimens were taken. Based upon positive serological reactions, 11 per cent of this group were found to have syphilis.

According to the census of 1930, there are 918,647 negroes living within the borders of North Carolina. Therefore, applying the ratio or 11 to 100 for syphilis among the negroes examined in Pitt County to the total negro population of the state, and assuming that syphilis is more or less equally distributed among negroes in all sections of the state, it is estimated that there are 101,051 cases of syphilis among the colored race of North Carolina.

Similar studies have been carried on in one county in each of five other southern states. In four of these studies, the prevalence rate in each instance was more than twice as high as the rate found in the North Carolina survey. In the other study, the rate was slightly slower than that reported for Pitt County.

From the information gleaned from these studies, it is apparent that syphilis constitutes a tremendous public health problem among the negro population alone.

Comparable studies among white groups have not been undertaken in North Carolina, or elsewhere. However, if the number of cases of syphilis reported by clinics, hospitals and physicians in private practice, together with those cases under treatment and not reported, may be considered reliable indices upon which to judge the extent of this disease in

North Carolina, then it is not unreasonable to assume that syphilis constitutes one of the outstanding health problems in this state, not only among negroes, but among the white race as well.

Syphilis is aptly described as the mocking bird of diseases. It can scarcely be said to have a note all its own, but rather it screeches forth its tragic story on every pathological key, now imitating one malady, now another.

Syphilis plays no favorites either with man or his mechanism. Once the germ of syphilis has gained entrance to the blood stream, it may invade any organ, tissue or bony structure of the body, with the exception of the enamel of the teeth. In congenital syphilis, even the enamel of the teeth may be affected.

Syphilis paints the skin every hue of the rainbow. It enters the mouth and makes of it a charnel house. It bestrides the face and makes a saddle of the nose. It leaps upon the scalp, and, snatching here and there, brings sad wreckage to woman's crowning glory. It touches the sparkling eye of youth and leaves in lieu thereof a stupid stare. It plays with the mechanism of the brain and turns a brilliant man into a simpering idiot. It crowds our institutions for the insane to overflowing with defective men and women who might otherwise be engaged in gainful occupation instead of a charge upon society.

Syphilis is a treacherous disease. A person whose primary infection was so trivial as to pass unnoticed or be forgotten may enjoy good health for many years. Then without apparent cause, he begins to notice that his feet behave curiously; he has difficulty with his locomotion. Lancilating pains shoot through his body. Or he may suddenly begin to have grandiose ideas. If he is poor, he thinks himself rich. If he is rich, he may begin to make bad deals and dissipate his fortune in a short time. What has happened to disturb the smooth current of his life? The treacherous germ of syphilis, lying dormant for years, has begun to stir. Resistance has finally been completely broken down. With a countless host of its progeny, the spirochete assaults the storehouse of nerve energy and lets it run riot, destroying the cells of the brain. And then what?

> The myriad chambers of the brain,
> Where thoughts are linked by many a hidden chain,
> He cleaves the links, and, lo, what wreckage flows.
> Where once was mind, an insane furnace glows.

Aside from the needless suffering and the defeat of human capability involved, the economic aspect of the syphilis problem is of tremendous importance. Unfortunately, no comprehensive figures are available for this disease. It is only occasionally that we are able to obtain definite information which indicates the enormous human wreckage and monetary waste caused by syphilis. Most of the evidence bearing upon the economic cost of syphilis is buried among the dusty archives of insane hospitals and kindred institutions, but from these records impressive information is revealed. It is estimated that one person insane from syphilis, based upon life expectancy, represents a net loss of

$20,000 in earning capacity, and a maintenance cost of $4,000. According to the most recent available information, there are at this time approximately 400,000 insane persons in the United States. Estimating no less than 10 per cent of the insanity to be due to syphilis, the economic loss in earning capacity and the cost of care, on the score of only one sequela of syphilis, based upon the figures quoted, would approximate $980,000,000. Now, if insanity, a relatively uncommon complication of syphilis, can alone cost nearly one billion dollars, the cost of illness and death from other and equally grave complications would total figures that would stagger the financial imagination.

To eliminate, or at least minimize the ravages of syphilis, it is necessary that it be brought under public control. And if any headway is to be made with the apparent rising tide of this disease, then we will have to lay aside whatever prejudices we may have to the problem and apply the scientific principles of prevention that have been so eminently successful in combatting other great plagues that afflict mankind. For example, those of us who are concerned with the public health must think of syphilis, not as a moral issue, with which the problem is so often confused, but rather as a serious infectious disease, which, like any other communicable disease, has become the unfortunate or undeserved lot of many.

The whole health problem in the control of syphilis comprises four fundamental elements:

1—Prompt and adequate treatment of infected persons;

2—Control of infectious individuals in order to limit spread of the disease;

3—Knowledge of cases;

4—Education.

The first essential in the control of syphilis is the complete control of infectiousness and the prevention of relapse. Therefore, provision for adequate facilities for the treatment of infected individuals, especially those who comprise the indigent class, is of prime importance.

The value of medical social service in connection with the handling of the syphilis problem is more and more being recognized, and it is undoubtedly true that efforts to control syphilis will fail if, in addition to a high quality of medical service rendered, physicians and others treating this disease neglect the social service aspect of the problem. If every case of syphilis could be isolated until cured this disease would disappear in a few years. It is obvious, therefore, that the social management of syphilis ranks in importance only second to competent and adequate medical service.

Law enforcement has a very definite place in syphilis control work. Quarantine is the only remedy oftentimes when recalcitrant individuals refuse to take advantage of treatment, and after all persuasive efforts fail. However, experience has shown that by improving the quality of medical service rendered coupled with efficient follow-up service it is possible usually to secure better coöperation of the patient than when measures of compulsion are relied upon.

While notification of syphilis cases is essential from the standpoint of statistical information, the greatest value in case reporting lies in the

knowledge that it reveals concerning when, where and under what conditions cases are occurring. Possibly the best results which follow the reporting of syphilis is that, in many instances, the sources of infection become known, and by proper action they can be required to take treatment and thereby prevented from further spreading the disease. In the reporting of these cases protection of the individual is considered subordinate to the preservation of the public health. Especially is the reporting of these cases proper when, by providing protection to the community, no hardship or injustice is imposed upon the individual.

Any program for the control of human contact diseases, such as syphilis, which is oftentimes so difficult of recognition, so insidious in its onset, and so successful in its development of carriers, must include education as one of its outstanding features. The public should be kept informed regarding the serious nature of syphilis, how to avoid infection, and the importance of prompt treatment when infection has occurred. The public has a right to this information, just as it has the right to information concerning other communicable diseases. The physician in private practice or the clinician in the clinic should overlook no opportunity to fully instruct patients passing through their hands regarding personal and community dangers associated with syphilis, the precautions to be taken to protect others from infection, and to emphasize the fact that at times prolonged treatment is necessary, even after all symptoms have subsided.

In summary, any program for the control of syphilis should embrace the following:

1—Adequate facilities in clinics, hospitals and in private practice for treatment of infected individuals, with provision for
   (a) follow-up of lapsed cases to insure completion of treatment;
   (b) tracing sources of infection of early cases and bringing such cases under treatment;
   (c) investigation and treatment, when necessary, of familial and other contacts.

2—Provisions for isolation, by quarantine or otherwise, of infectious persons considered a menace to the public health.

3—Provisions for discovering cases through
   (a) morbidity reports;
   (b) information from patients as to sources of infection;
   (c) examination of family and other contacts;
   (d) examination of food handlers, where ordinance provides for same;
   (e) routine Wassermanns on selected groups;
   (f) examination of inmates of state and county institutions;
   (g) laboratory reports.

4—Education of the public regarding the serious nature of syphilis, its long and insidious course, and the importance of early diagnosis, and early and adequate treatment.

5—Better training of physicians in modern methods of technic, diagnosis and treatment; and advocacy of a more general use of the Wassermann test as an aid in discovering unsuspected cases, as well as an aid in the perfection of accuracy in diagnosis.

Finally, whatever else might be done for the control of syphilis, treatment by skilled physicians must be so freely available that not a single infected person need go in need of it. Therefore, the medical aspect of syphilis control work should occupy the first place in any program.

Dr. James M. Parrott (Raleigh): I think I get about four things out of this paper.

In the first place we have listened to a classic. That was one of the most delightfully presented as well as prepared theses it has been my pleasure to hear.

Second, Mr. Riley has called our attention to the vastness of the problem. Well, we have known that all along in a way but it is just one of those things which has become so familiar to us, Mr. President, that we have grown accustomed to the fatalistic idea, that is, that it is here and we can't do anything about it and we will just have to make out with it the best we can.

I confess until Mr. Riley came to our office about a month or six weeks ago I was more or less indoctrinated with that pessimistic view myself and still am, perhaps moved and motivated by the vastness of the problem and the peculiar difficulties of handling it. It is the most difficult disease to handle, with the exception of its colleague, in the field of pathology.

I think Mr. Riley has, however, aroused our interest in the matter, certainly he has mine, to the point that I am beginning to ask myself this question: Isn't the very vastness of this thing and its difficulties a real challenge to North Carolina brains?

North Carolina is not in the habit of sitting down and waiting for somebody else to solve its problems. Why not let's do something about this thing, ourselves?

We thought thirty years ago that tuberculosis was a hopeless sort of situation, but there were two or three voices that cried here and yonder in the wilderness almost hopelessly and to my mind entirely so but presently a few more joined in the cry, and a few more, and a few more, and then after a while we ran him out in the open, almost like the fellow who said to my bald-headed friend here when he was scratching his head, "Chase him up into the open and maybe you will catch him." (Laughter)

A voice called us into the clearing and it was the voice of McBrayer. Then McCain joined in and, bless my life, almost overnight, so quickly did it happen, tuberculosis was considered a thing that is about conquered, because we know how and we have the determination to do it, and we have cut the mortality of tuberculosis in two.

Why can't we do that with syphilis? That is the vastness of the problem.

The third thing I get out of Mr. Riley's discussion is that he inspires us to do something. We have taken the second step when we have done that, when we have realized the situation and are determined to act.

The fourth thing that I get out of Mr. Riley's paper is a starting program. I am not sure that I could say now that his program is just the thing to follow but I am undertaking to say, Mr. President, that he has started us in the right direction and praise be if we can and the people in North Carolina (that is, the thinking people, the doctors and health officers—I have come darn near to the conclusion that they are about the only folks in the commonwealth who are seriously thinking now about anything) can do something.

I didn't intend to say all this, Mr. President, but you got me up here and you are responsible. (Laughter and applause)

President Epperson: I am glad you did, Doctor.

Is there further discussion?

Dr. C. N. Sisk (Rockingham): I want to ask Mr. Riley whether or not there is any literature available through the United States Public Health Service that gives a specific course of treatment for the cure of syphilis.

My observation in discussing this subject with physicians is that no one has any definite course of treatment that he says is sufficient to cure syphilis.

The second question I should like to ask Mr. Riley is the importance of the one or two plus Wassermann in an individual without apparent syphilitic lesion.

President Epperson: Is there further discussion of this very interesting paper?

Dr. R. S. McGeachy (Greenville): Mr. President. Two years ago last March there was started in my county a demonstration clinic financed by the Rosenwald Fund of the United States Public Health Service. They took something over 10,000 Wassermanns at that time with about the result that Mr. Riley suggested. They did treat several cases. That clinic terminated last July and for about six months I had to run it as best I could until the first of this year when it started up again. We have taken about five thousand Wassermanns, between four and five thousand, since the first of January, with about the same result. Not quite as many of those that were taken the first of the year show positive. The percentage is a good deal lower, showing that there have been very few recent infections. But we are getting some recent infections.

At one clinic at a point in our county about a week ago we had three come in with absolutely perfect skin lesions, three young colored people. They came in with very acute stages of syphilis.

Dr. Barrett and Dr. Moser will bear me out in this: that for several years we conducted the clinic in Lenoir County. I was criticized some and I am going to try to tell you all something about how to keep from being criticized.

I agree with Mr. Riley that treatments should be provided for everyone that has syphilis and I will go farther and state that it should be provided that everyone who has any form of venereal disease, gonorrhea, syphilis, chancroids or any of the venereal diseases should receive treatment. We have not taken over gonorrhea because it is a hard proposi-

tion. It is a difficult thing to handle. In my opinion, a patient with gonorrhea should be seen oftener than once a week. We try to get everyone of our syphilitic patients to report once a week for treatment, and you have to see them oftener than that for gonorrhea. But they should be treated.

But, gentlemen, don't treat anyone in your office unless you have special permission, like we have in our county on account of the widespread population, or unless the patient is referred to you in writing by one of the local physicians. If you do that that will insure your getting treatment for everybody and will insure their protection. If you will do that, the medical profession won't have any comeback and you won't have any trouble at all. Don't take any permission by word of mouth, either, or anything like that. Send them back and say to them, "I must have a letter in my files or a note in your physician's handwriting saying that he wants me to treat you."

If you will do that you will get along all right.

Dr. Sisk asked a question about what is the specific treatment, or how long must the treatment be continued. Of course, that depends to a great extent on the duration of the disease before you get hold of it.

I had one woman that I gave a dose of neo to every Tuesday afternoon for twenty-nine weeks. That woman never missed one dose. I couldn't make her stop. She kept having positive Wassermanns and she kept coming. She begged me to increase the dose until the last four or five doses were 50% more than I had ever given before, intravenously.

She almost rubbed the hide off herself with mercury. She took mixed treatments, tablets and everything on the face of the green earth all the time that I was "shooting" her. She finally got a negative Wassermann and she left Lenoir County.

I have a letter in the drawer of my desk right now from that woman. She is down in Florida and she says in this letter, "I have had a Wassermann test made every three months for five years and it is still negative. God bless you!"

I said, "God bless you and God bless me, too, because you didn't die!" (Laughter)

A man came back to my office the other day who I know has taken positively 150 different kinds of shots. I shot him and other physicians around in the county shot him. I looked at my records the other day and found that he had ten negative Wassermanns in eighteen months. He is a four plus now. Where in the world it comes from, I don't know. I didn't trust the laboratory tests on this man so I took a Wassermann and sent it in under another name and it came back four plus.

I believe most syphilitics can be cured but none of them can be cured with ten or fifteen doses of neo or anything else. You might just as well put that in your pipe and smoke it because it just can't be done. Nobody can be discharged as cured of syphilis without two or three years of good faithful treatment, I don't care who he is, how old he is, how long he has had it, or anything else. I don't care if you get him before his Wassermann is positive, even. No man can get well, or

woman, or anyone, of syphilis in less than two or three years of good faithful treatment.

I was in charge of a V. D. ward during the war and I saw them coming in in all shapes on earth. I saw young married men come in there whom we had to mark in line of duty, even. They had just been married and came in with chancroid and all that. And the treatment laid down by the United States Army was that you had to keep them under observation for two or three years.

Syphilis in my opinion is one of the greatest problems we have to handle.

It is a problem that we have not paid the attention we should.

I had a woman come into my office on crutches. She could hardly stand up. That woman today is a self-sustaining, self-supporting woman. She is working regularly and is not a charge on anybody.

Some of them are going to fall down on you. Some of them are going to go crazy. Some of them are going to be paralyzed. It is a problem that is so big we can't hardly describe it, in my opinion, because it is a mockingbird and a jaybird and everything else when it comes to imitating different things. It is one of the largest problems that we have.

I know you have all seen poor little innocent children born with congenital syphilis.

I have had twelve years of almost daily contact with this problem because it was twelve years last September that I started in the work, and in that time I have given I guess about 50,000 doses of neo.

Gentlemen, if you want to be sorry for anybody give him a big dose of neo extravenously. Give neo in the tissues, and if you are not forced to cry almost by the suffering of that poor individual you are certainly a hard-hearted man, because it does hurt and it hurts like old Harry when neo is given outside the vein.

I have tried out sulpharsphenamin. I gave it to a physician once. He was to come back in about a week and get another dose. He is not a physician of our county but he happened to be down there and he had seen me give it once or twice. He had a skin lesion. He knew that he never had syphilis or anything but he wanted to try a shot of sulpharsphenamin and he got me to give it to him. He didn't come back for the second treatment.

A few weeks after that I met him and I said, "Why didn't you come back for that treatment?"

He said, "Hell's fire! You'll never get me back there again. I will keep my skin disease just as long as I live if that is the only way I am going to get rid of it. You won't get another dose of that stuff in me."

I don't believe in the use of it extravenously but I do believe in the giving of neo intravenously. I believe in mercury. I don't give large doses of neo like I used to. That woman proved to me that it can be given but I am not going to be fool enough to give it any more. Our maximum dose now is six-tenths of neo and I am firmly convinced that that is just as good as the ninth and a half of a ninth that I gave that woman.

But I wouldn't hesitate to go right on and on and keep on giving it as long as there were any symptoms felt. I know I am open to criticism on that but you can't cure everybody with a specified number of doses of anything, or neo, or pure arsphenamin, or anything else. I have never had a bit of experience with pure arsphenamin and I don't know that I ever will have because neo is so good now that I don't think it is necessary to use the other.

We are giving very large doses of the mercurial inunction. We give a half of one of these Parke Davis' Mercurettes. We have them rub that in for twenty minutes every night for six nights out of the week. Personally I feel that is a little bit more than is necessary to because it is going to salivate some of them and salivate them like the dickens and I have salivated them within a week with that amount of mercury, just rubbing in the Mercurettes, one-half of a little Mercurette such as Parke Davis puts up. We buy them by the thousand and we give each person who comes in three of those Mercurettes a week for a specified number of weeks and we give them the neo for a certain number of weeks, then they rest, then we give them eight doses, rest four weeks, then six doses, rest a month, and then give more doses. Then we Wassermann them right along and keep right on giving them that treatment, or I am going to keep right on giving it to them as long as they will come.

I have gotten to the point where I pay but precious little attention to a negative Wassermann. I do pay attention to positives but I pay precious little attention to negative Wassermanns because so many patients have been improved so remarkably with the shots of neo that they had negative Wassermanns for two or three Wassermanns at a time.

A colored man about sixty-five years old came into our office the other day with paralysis agitans. I don't know what the result is going to be. I don't know whether he is going to die on my hands or not, but he is a great deal better now than when I started to give him the shots. He begged for shots and I said, "If you are fool enough to want them I will give them to you."

I started him off with light shots. He said the other day, "I haven't felt as well as I do now in I don't know how many years."

His hands are as steady as mine. He is walking and talking well and is doing just splendidly.

There is something else I found out by accident. Neo-arsphenamin will cure these blooming summer sores. One or two doses of neo-arsphenamin will cure you absolutely. I have tried that in enough cases to know that that is so.

I don't know of anything better that you can do than to provide for this. If you can get your physicians to do it in your counties, it is a whole lot better than doing it yourself because it is a lot nicer to see other folks do it than to work yourself. But if you can't get them to do it, establish a clinic and you will never have any cause to regret it.

Dr. Roderick M. Buie (Greensboro): A few days ago I had the pleasure of having Mr. Riley call on me and after talking with him and after hearing his paper here I am thoroughly convinced that public

health workers and the medical profession as a whole and the public as a whole rely too much on the use of salvarsan or neo in the treatment of syphilis. I am guilty as much as anyone else.

Take as an example this case that Dr. McGeachy spoke about that had a positive Wassermann after so much neo being given.

I make it a rule, when I can, after giving so much neo, if I still have a positive Wassermann, to fire it up with bismuth and mercury rubs. But in public health work we have so many cases of these wandering prostitutes who come in, get a few treatments, and go on.

So I think it would be a wise thing if this state could have some provision made for a man like Mr. Riley to come here and stay with us a while, and see if we can't work out a more accurate treatment for syphilis. (Applause)

Dr. R. S. McGeachy (Greenville): May I say another word, Mr. Chairman?

I don't know whether every one of the health departments know that they can get practically every kind of neo-arsphenamins at special public health prices, from practically every one of the manufacturers.

I forgot to state when I was on my feet before that we are using silver salversan and are getting very good results with it. I don't know whether anyone is going to turn blue on us or not but I hope not. You can get that very reasonably, too, from the manufacturers.

President Epperson: Mr. Riley, will you close now?

Mr. Riley (closing discussion): While the question of treatment was not expected to come within the purview of my paper, the scientific phase of this subject has been injected into the discussion, with profit however, I think.

It is very difficult to discuss syphilis in any of its phases or ramifications without touching somewhere along the line the scientific side of it.

While we have no ultra-therapeutic ideas of treatment we do believe that although the treatment of syphilis should be undividualized, there are certain guiding principles which should be followed in the treatment in order to get the best results with the least possible danger to the patient.

The United States Public Health Service some years ago did issue a manual of instructions. It has become obsolete because as the years pass ideas change. However, that book will be re-issued I think some time soon, at least, just as soon as the Public Health Section of the League of Nations gets through milling over it. In the meantime we have developed what is known as a schedule for the treatment of syphilis which is divided into two sections: one, dealing with early syphilis, and the other dealing with latent or tertiary syphilis.

We have just prepared a schedule which contemplates as a minimum dosage twenty doses of the neo-arsphenamin with a comparable treatment with mercury, either using thirty doses of mercury by the intramuscular route or one hundred and forty-four rubs of mercury by inunction.

Any of you who are interested in seeing or receiving a copy of that schedule will be mailed one, by addressing me, or addressing your request to Dr. Parrott's office. However, in view of the fact that you are all located in North Carolina I think it would be well for you to just communicate with Dr. Parrott or his office direct and a copy will be furnished to you.

In addition as a part of the outline of treatment we have boiled down a few pertinent facts dealing with what to do and what not to do in the case of reactions which become a part of this outline of treatment.

Moreover, we believe that the outline is not complete without some sort of a companion guide which has to do not only with the functions of the various drugs but with how to prepare the patient, the proper technique to follow, the need of sterilization. A copy of that also will be furnished to you through Dr. Parrott's office.

I am not familiar with the names of the various physicians here (I have been here just a short time), so I cannot refer in this closing discussion to the names of the men who have kindly spoken on the subject. Nor shall I attempt to discuss in this closing moment the subject with any degree of sequence as it was discussed by you.

Relative to the importance of a Wassermann blood specimen that reacts either one or two plus, we are not prepared to say just exactly what that means. However, if the case from whom the blood specimen was taken shows no history of syphilis, shows no manifestations of syphilis, a one plus Wasserman would mean nothing. We would say that that case does not have syphilis.

The same thing is true of the two plus.

On the other hand if the case had ever been under treatment and it was a known syphilitic then the one plus or two plus would indicate that the patient still had the disease.

As a matter of fact, even a negative Wassermann does not prove the absence of syphilis. As Dr. McGeachy said, we must carry the patient over an extremely long course of treatment and no case should ever be permitted to be discharged without resorting to the spinal fluid as well as the blood Wassermann.

The period of transmissibility is a moot question. Nobody knows just where the line of demarcation as between infectivity and non-infectivity occurs. We have for years been relying upon the disappearance of open lesions or a reversal of the blood Wassermann from a four plus to a minus as being indicative of a complete freedom from the disease. We are beginning to change our minds. We are not sure whether that case has been cured, based on serological reactions. So that it is wise, if you have a case of syphilis under treatment, to continue to observe the patient over a long period of years and take repeated Wassermanns at stated intervals, anywhere from six to twelve months apart.

Further, with regard to the question of what constitutes treatment, what I am about to say might be considered as treason if it were known in Washington that I was saying this, because the very brief statement

that I am about to make will appear in rather a long and instructive article that is to be issued by the United States Public Health Service either in May or June.

There are three types of treatment, that is, there are three methods of treatment followed: the intensive treatment, where you hit the thing on the head and keep hitting it hard as fast as you can.

Then there is the intermittent treatment which contemplates a certain number of weeks to divide the courses as between your various anti-syphilitic drugs.

Then there is the continuous treatment.

This article which will soon be published will show that the intensive treatment is perhaps the least efficacious. In a study of 6,000 cases by some of the outstanding authorities in this country, all of the cases occurring in the East, it was found that by the intensive method sixty per cent still had a positive Wassermann after fifty-two weeks' treatment. With the intermittent treatment it was found that only thirty-five per cent had a positive Wassermann at the end of the first fifty-two weeks. But with the continuous treatment, with no rest period at all, it was found that the Wassermann reversals were practically one hundred per cent.

That proves the theory that some of us have had for a long time, that the most effective way to treat syphilis is by continuous treatment without interruptions at all, and in this schedule we have planned that I spoke about a moment ago the continuous treatment is contemplated, that is, either the neo-arsphenamin or the mercury, every week in the years for fifty-two weeks.

With regard to the question of the relative spirochetal or the relative treponemacidal value of the old salvarsan versus neo, there is no question but what old salvarsan or "606" is the most effective drug. Unfortunately, it is dangerous in the hands of the man who only treats an occasional case of syphilis. He is not prepared. If he fails to neutralize the drug he is going to kill the patient.

In a bordering state where I happen to be on detail at the present time—and parenthically I am glad to be here but with Dr. Parrott's permission sort of by duress—we do not distribute old salvarsan at all. That is, we do not distribute it to the physicians nor to the county health officers because if we err in the efficacy of the drug we must err on the side of safety. Public health work has enough difficulties meeting it now. We have enough criticism now and if we were to use old salvarsan in the treatment of our syphilitics within county health units, I mean, and kill a patient it would just give one more opportunity for the iconoclasts who have been trying to pull us down for years to take an awfully good swipe at us. So that we only use the neo. We do believe this, however: that neo-arsphenamin is just as efficacious as the old salvarsan provided you use it over a longer period of time.

What I mean by that is this: that if for the sake of argument it is possible to say that within fifty-two weeks you are able to definitely cure a case of syphilis by the use of old salvarsan plus the other complementary drugs, it would be possible to cure the same case of syphilis in

eighteen months or two years with neo, and the only reason that we use neo is as I have mentioned before.

I have heard mentioned either once or twice today a drug called silver salvarsan. It is a drug that is very little known among the profession. It is perhaps the most effective, the most potent of any of those drugs which are included in the arsenical group.

There are two very important points in connection with silver salvarsan. The first is that it is absolutely safe. There are absolutely no reactions occurring from the use of silver salvarsan.

The next is that if we find a patient who presents an idiosyncrasy to any of the arsenicals such as sulpharsenamine or neo or old salvarsan and take that patient entirely off those drugs, give him something else or nothing for a little while, and then put him on silver salvarsan, for six or eight weeks, we can eventually go back to the use of neo or some of the other arsenicals with perfect assurance that that patient will never have a reaction. So that it is a very valuable drug.

There is one difficulty in using silver salvarsan and that is because of its color. It makes the blood black in the vein, so that in the use of that drug we always recommend that unless the clinician has an exceedingly accurate and fine technique he insert the needle into the vein first and then attach his syringe and shoot the drug.

If I have left out anything I am not aware of it. Have I covered everything that has been brought up in the discussion? If I have I wish to take this opportunity again of saying that it has been an honor to have been with you and I am glad to have been here. (Applause)

President Epperson: Thank you, Mr. Riley. We were glad to have had you.

Dr. C. C. Hudson (Greensboro): Mr. President, I arise to offer a motion.

For several years we have had a very active venereal disease campaign carried on under the auspices of the State Health Department. Owing to the cut in appropriations the State Health Department had to discontinue part of this work, especially the personnel employed to work with us in the field in connection with the work.

I understand that it might be possible for us to secure the services of Mr. Riley to work with the State Health Department and with us health officers in the field for a while to see if we cannot carry on a work perhaps similar to the work that Dr. McCain and Dr. McBrayer are carrying on in connection with tuberculosis.

We all realize that we have a problem here just as large as our tuberculosis problem and just as important from the standpoint of the people in the state and I therefore want to offer a motion that we as health officers request the State Board of Health to see if it will not be possible for us to secure the services of Mr. Riley or someone like him to work with us for a year, two years, or as long as possible.

. . . The motion was duly seconded by Dr. Roderick M. Buie (Greensboro). . . .

President Epperson: You have heard the motion duly made and seconded that the State Board of Health endeavor to acquire the serv-

ices of Mr. Riley for a long period of time. Is there any discussion? (Call for the question)

. . . The motion was put to a vote and unanimously carried. . . .

Dr. E. A. Branch (Raleigh): I should like to say just a word.

Awhile ago you were discussing trench mouth. I want to say it is just as prevalent over the state as you have heard and perhaps more so, and we find lots of it in the schools among the young children especially. In one school the other day we found it more than common. We found that due to the reduced budget—you have heard of that (laughter)—they did not have funds for the light bill. That included the pump that pumped the water and they turned on the juice just a little bit each day to pump a little water. That meant that there was sufficient pressure of that water so that it would just ooze out of the fountain and these children in order to get a drink had to put their mouths down on the fountain. We found trench mouth all through that school among these little children.

Gentlemen, I just wanted to bring that to your attention because that is a public health problem and it goes right back to that reduced budget that we are wrestling with all over the state. You can take that one instance before your commissioners who are in charge of the purse-strings, and through them to the others, and tell them that sometimes the thing that they call economy is extravagance to the "nth" degree.

Thank you. (Applause)

Dr. G. M. Cooper (Raleigh): Mr. President, the North Carolina Conference for Social Service, which has done so much along public health lines in this state, will hold its meeting next week at Durham. Its President, Mrs. W. B. Waddill, had the conference postponed one week because their conference conflicted with the convention of this organization. That shows you how much interested they are in our work. She has come to Winston-Salem this afternoon to present to the North Carolina Medical Society, either in the House of Delegates tonight or before the General Session tomorrow morning, some recommendations she has for proposed changes in the State Marriage Laws. They are very practical and very important. The changes she has to propose have the unanimous endorsement of the medical members of the Health Committee of the Social Service Conference composed of such men as Dr. Bulla, Dr. Andrews, Dr. Taylor of High Point, Dr. Davison of Duke University, Dr. McCain of the Sanatorium, and Dr. Sidbury of Wilmington.

Mrs. Waddill adopted the generous attitude of coming before the physicians to procure their endorsement, or at least to discuss with them, and to amend her recommendations in any way that they think advisable before she places them before her conference next week.

Now, with your permission, I am going to take the liberty of presenting Mrs. Waddill in person so that she can bring her own greetings to you. (Applause) She wants your moral support, every one of you, for her changes.

Mrs. W. B. Waddill: Mr. President, and Members of the North Carolina Public Health Association: I appreciate being given this

opportunity to say a few words to you. I suppose it is near the end of your session and I therefore will not consume very much time. But I am particularly pleased that Dr. Cooper should speak to you about the matter for which I have come to Winston-Salem, and that is concerning some change in the present marriage law which as many of you know has become a mere scrap of paper.

The social workers of the state of which I am one in the North Carolina Conference for Social Service, of which I happen to be the President this year, have been particularly interested in this one thing as well as many others. They are especially interested in getting our Marriage Law strengthened so that it really will prohibit the marriage of idiots, imbeciles, feeble-minded, those suffering from venereal diseases of all kinds. These proposed changes that we are suggesting will require a negative Wassermann blood test and will prohibit the marriage of epileptics. And there are a few more minor changes like that that are not great but that will make the law much more effective, and that is what I have come to present to the House of Delegates this evening, at least, I suppose I will get a hearing there. I think they have arranged for it. And I would be glad for you people to take it under consideration. However, I hope that when they come before your body for formal actual, endorsement or recommendation, whichever you wish to term it, that you will consider the matter seriously and favor me, if possible.

It may be that you people, the Medical Society, will want to make some very drastic changes in the law as we have it written but certainly you will approve the purpose of our changes and that is to make a better Marriage Law and one that really will prohibit the marriage of those that are unfit.

Of course, there are going to be many objections to this—the question of the increase in illegitimacy if we prohibit the marriage of those who should not marry, and there are many things to consider but I hope that we can meet all of those objections in some worthwhile manner. Certainly we should have a Federal Marriage Law as well as a Federal Divorce Law but since that is perhaps a long way off, or a few years off at any rate, and we can't get that, I do not see any reason why North Carolina should not lead the way in this social legislation as she has—I won't call it "social," I will call it "medical" too and "economic," because it has all those very important phases—done in many other matters both medical, social, and economic.

I think it is all right for us to let the states surrounding us know how we feel about the question even though some of our people will continue to evade the law by going into the states that require no physical examination.

I suppose that is all the time I can afford to take up but I appreciate being given this opportunity to say these few words. I just arrived a few minutes ago and Dr. Cooper saw me here in the audience, and I certainly do appreciate being given this opportunity to speak to you about something in which I am tremendously interested, not only as a county social worker, because I am Welfare Superintendent in one of

the counties of the state—in Vance County and I live in Henderson—but I happen as I said to be President of the North Carolina Conference for Social Service this year. And because we had a dismal failure in trying to get this law through the last Legislature I felt that we hadn't gone about it in the right way, that we should have brought it before the doctors and gotten their endorsement of it first, and that is what we are asking for this year. Because of that fact we were very glad to change the date of our conference this year. It was to have begun yesterday in Durham but when I found that you people had selected these dates we were glad to postpone ours for a week so that some of us who are interested in the Conference could some here, and so that you doctors could come to us, which I hope you will do as many of you as possible. I hope that you will come to our meeting at Durham which begins next Sunday night and will last through Monday and Tuesday.

If we can get the endorsement of this Society for the proposed changes in the Marriage Law I think we will stand a far better chance of getting endorsement of it in other places in North Carolina.

President Epperson: That about concludes our program with the exception of reports from committees appointed.

RESOLUTIONS

Presented by Dr. J. A. Morris for the Committee

It appears that under the present system, the lack of contact and opportunity of group discussion of, and coördinated action on the various problems that from time to time confront the directing officers of the various county health units of the State at times leads to confusion and misunderstanding.

Your committee, therefore, suggests that this organization appoint a representative executive committee from the whole-time health officers of the state whose duty it will be to consider the various problems that relate to the different county health departments, and in conference with the officials of the State Board of Health, assist in determining the matters of policy and procedure.

We also recommend that the president of the association as now organized be made ex-officio chairman of that committee and that he be instructed to appoint four other members to serve with him on this committee.

E. R. Hardin, *Chairman,*
Z. P. Mitchell,
J. A. Morris.

Adopted.

Dr. A. C. Bulla (Chairman, Raleigh), presented report on the President's Address for the committee:

Your Committee on the address of the President, submit herewith the following report:

First: That we endorse the recommendation made by the President that an organization be perfected, composed of Administrative Public

Health officials which shall function in accordance with the plans outlined by the President relative to Public Health Work and Administrative Practice.

Second: That we endorse the recommendation relative to the establishment of a School of Public Health in some of our higher institutions of learning in North Carolina. However, we believe that actual experience in Public Health Work over a period of years should be recognized as the equivalent of training in a School of Public Health.

Third: That we approve and wish to emphasize the suggestions of the President that Public Health officials and the Medical profession better understand the problems confronting each other. We do not believe that it is any part of the duty of a Health Officer to treat disease without regard to whether the patient is able or unable to pay, however, there are certain practices and procedures which are necessary for the protection of Public Health which must be done by the Health Department without cost to the citizen. We quote the President and heartily approve "I am fully confident that the time is at hand when Health officials and the practitioners of medicine should council together and formulate coöperative programs which will be mutually beneficial to each."

Fifth: That we desire to express our thanks to the President for his splendid address; we feel that it is one of the most comprehensive and most valuable papers on Public Health Work which it has ever been our good fortune to hear.

Signed A. C. Bulla, *Chairman,*
R. E. Broadway,
C. W. Armstrong.

. . . The motion was put to a vote and unanimously carried. . . .

. . . Announcement with regard to the evening session. . . .

President Epperson: Just before we adjourn I should like to ask if Dr. Norton is in the audience, Dr. Norton of Rocky Mount. It seems as if Dr. Norton is not here. He promised me he would come. He had a matter which I will state briefly which I think is worthy of consideration.

You men who are physicians engaged in public health work are required by the State of North Carolina to pay a tax of $25 each year. There has been a good bit of objection raised to that. However, you still have to pay it. Without saying anything further about it I will just tell you that I happen to know that there is right much objection and you may desire to take some action looking towards getting that $25 fee eliminated. I am sure you would all be glad to do it if you could.

Personally I think a man who is a public servant who does not engage in the practice of medicine for profit should not be required to pay it. Dr. Norton is very much interested in this subject and I invited him to come here today and present it to you but since he is not here I simply make mention of it and you may take such action as your conscience dictates about the matter.

Dr. C. C. Hudson (Greensboro): Since Dr. Norton is not here I think we should appoint a committee to investigate this matter and consider it, and I move that a committee of three be appointed to take up the matter with Dr. Norton and study the question and see if it is possible for us to increase our income to that extent. We certainly need it.

. . . The motion was seconded by Dr. J. Roy Hege, (Winston-Salem). . . .

President Epperson: It is duly moved and seconded that a committee of three be appointed to take up this matter with Dr. Norton and see if something may be done about it.

. . . The motion was put to a vote and carried. . . .

President Epperson: I will pass that on to the incoming President after election tonight and ask him to appoint such a committee.

If there is nothing further to come before the meeting I declare it adjourned until eight this evening.

. . . The meeting adjourned at four-fifty-five. . . .

MONDAY EVENING SESSION
APRIL 18, 1932

The meeting convened at eight-ten o'clock, Dr. J. H. Epperson, President, presiding.

President Epperson: We will be favored at this time by an address from Dr. Parrott, Secretary and State Health Officer of the State Board of Health.

Dr. Parrott! (Applause)

NORTH CAROLINA SPIRITUALS—THEY MUST BE PRESERVED

By Dr. James M. Parrott, State Health Officer

Mr. President, Ladies, and Gentlemen: I am mindful of the fact that I am to be followed in the program by one who is greater than I. I take this opportunity to express to Dr. Bagby of Richmond my official and personal appreciation for his kindness in visiting us and speaking to us tonight. I am sure that you will hear him with especial pleasure and unusual profit.

If I depart—and I will—from the beaten paths usually followed on occasions like this, allow me to say that I do so intentionally. I have the thought that at least one time during a session of this character someone ought to say something about what I choose to call our "environmental relationships." I think we are agreed that we are in the midst of the most serious crisis which has confronted the people of this commonwealth in days of peace in a hundred years. We hear it referred to as a depression. I wish it were only a depression because then it would pass away sooner or later, and frankly, I would have less misgivings about the outcome. But it is deeper and more far-reaching than a depression.

It is striking at our economic foundations and threatens the existence of our social structure.

When it passes as it will, because all things pass, we will live in a new day. We will have new social order. We will be faced with new economic problems and new health problems.

I give it to you as my opinion that when we pass out of this crisis we will be bettered by our experience or worsted by it in exact proportion and ratio as we ourselves react to our trials and tribulations.

That being so, I suggest to you that its very seriousness demands the calm, collective thinking of the best minds in North Carolina. The conditions of tomorrow are involved in what we do now. If we approach the solution of our problems with becoming wisdom and courage we shall come out a finer and a better people because of the catastrophe through which we are now passing. On the other hand, if we take counsel of our fears and act foolishly I give it to you again as my opinion that North Carolina will not recover from this tragedy in fifty years, if indeed in a hundred.

I recall in one of his addresses that Mr. Webster said that when a mariner has been tossed for many days by thick and foul weather, he takes advantage of the first break in the clouds to ascertain his position. May I carry the analogy a little further and may I in my own feeble way suggest to you that when a mariner finds himself in mid-ocean, storm-tossed and his boat about to sink because of too great a cargo, with the storm yet raging and no prospect of any cessation, if he be wise he takes stock of his load and he throws overboard such part of his freight as will so lighten his vessel that he can make port.

The mariner does not run around indiscriminately to suit the cook in one instance, or the boatswain in the other, or the stoker, or Johnny on the bridge who has the most political pull, and throw overboard the things that may suit them. If he is wise he casts into the sea the things that are not needed, even the desirable non-essentials.

Overboard goes the rock and the ballast, the pig-iron and the lumber. But the captain keeps every bit of his clothing and all of his food, and the last drop of his fresh water lest he perish e'er he reach the harbor.

Now, we might just as well admit it: North Carolina as a State, the local governments, and we as individuals, are all but floundering in a boat about to sink in the most terrific storm economically speaking that we have known in all our lives. Frankly, at this time we have on board a vast deal of pig-iron and sand and ballast.

When a man is poverty stricken Cadillac limousines had better be dispensed with. Cast them aside. Throw the rock overboard. Fling the ballast into the sea. Consign to the waves even lumber and pig-iron. They are desirable but not necessary to preserve life. The wise thing to do as individuals and as a State is to retain the things that are essential.

Throw off topcoat and coat, but keep your breeches. Do not empty your drinking water. Hold your pork and collards.

Let us apply these fundamental principles to our statecraft thinking. Shall we in North Carolina make the perfectly foolish mistake in this

tragic hour when the boat is about to sink of rushing helter and skelter all over the vessel and casting into the sea some of all things and with no thought of values and of life-saving necessities? Take heed lest we set back, if not destroy, our civilization.

The question naturally arises, What are the things that are necessary? If you were to ask me I would tell you the things that are necessary are the things that were of yesterday, are now, and will be tomorrow and forever. They are the imperishable things, the things that live always. They are things that blossom life and adorn mankind. They are the things that are spiritual.

In the first place we must preserve our churches. I tell you that a civilization cannot endure that forgets God.

In the second place, we must preserve our amity, and if we lose it, quickly we must find it.

When I speak of peace, I am not thinking so much in terms of intersocial relationships as I am of the "innards" of our minds. A wise one has said, "As a man thinks, so is he." Happiness, which is peace plus tranquillity, is like unto the Kingdom of Heaven. It cometh from within. I am thinking about that peace which is the offspring of faith and courage. A man who has faith and courage cannot be disturbed. He stands like a giant oak amidst the forest in the face of all storms.

This is what North Carolinians need now. They need sublime hope, the result of a never-failing faith in themselves, faith in their fellowman, faith in God, and courage to look to the future. That is what I am talking about. We must preserve our amity.

Then too, my friends, may I say that we must take care of those institutions in North Carolina that are sheltering the mistakes that we made yesterday, that are harboring the frazzled edges of our humanity.

We must gather our Welfare Service to our bosoms. It will warm our cold hearts and draw us closer to God and each other.

And then, we must keep the school trucks running in North Carolina and our school bells ringing.

Lord! What a tragedy it will be if now we fail to face the present with indomitable courage and fine wisdom and close our schools. We have created a stupendous public debt in our State. We will undoubtedly leave more than five hundred millions of it to be paid by our children. It is not right to now hamstring them with untrained minds. If North Carolina ever needed schools, and God knows it does, it needs them now.

The fifth thing is something that you and I are especially interested in. It is the most important of all North Carolina spirituals, and that is Public Health. The health of the people of North Carolina must be vouchsafed. Regardless of whatever else is done in North Carolina, if we keep our churches and hold our faith and discharge our social relationships and keep the schoolhouses open and our health service going, we can wipe out every industry in the commonwealth, and build them back tomorrow.

But, my friends, raise a generation of ignorant people in North Carolina and intensify that ignorance with feeble bodies, and God help North Carolina! This would close every factory and shut down every industry, and wipe off the map the last vestige of the proud civilization which is ours.

The man who strikes public health in North Carolina drives a dagger into the very vitals of our beloved State.

And I go further and say to you that in my candid opinion there is only a degree's difference between the man who would wreck public health in this tragic hour and the Benedict Arnold that offered to sell his country to the British, the difference being this: that Arnold would have sold to a civilized people; the man that is traiter now to the physical well-being of North Carolinians would turn this State over to an enemy that never yet has been conquered.

I remind you in this connection that it is absolutely impossible for us to build a Grade A commonwealth out of Grade C citizens.

You say it may mean heroic service and sacrifice to carry on an adequate health program. Well, what if it does? So much the better for us, for blessed is he who walketh in the ways of service for he shall find his Holy Grail in the nobility of his sacrifice.

To be sure, only the thoughtless would hinder and hamper public health work. If it collapses many of our industries will be fatally injured, our economic structure seriously hampered, and the living conditions of our people would become quickly intolerable. We spend six times as much for funerals and tombstones each year as we appropriate for our public health service. It is not sound economy to spend five hundred times as much to keep a child in school a year as it does to protect that child's health, and if the child fails, spend another five thousand per cent of the health cost to carry it on an extra year. The funds available for public health service have been reduced in three years from four hundred and eighty-six thousand dollars to two hundred and sixty-three thousand dollars annually. Our service is undermanned. However, our directors and employees are fired by the zeal of devotion to a great cause. Working overtime has become almost the order of the day. Holidays with us are frequently omitted, and we have occasionally found it necessary to even work on the Sabbath. I solemnly warn the people that we have reached the danger zone in our curtailments and more financial reduction for public health service will be almost if not quite disastrous.

I am not complaining, nor am I finding fault with our public officials. The governor and the Budget Commission are intensely interested in public health and they are assisting all they can with the meager funds which are now available.

The present time is a challenge to you. It is a challenge to me. The medical profession of North Carolina will meet that challenge. We will pick up the gauntlet that has been thrown down. But I notify the people of the commonwealth and those who are directing with more or less judgment its destiny that before we shall allow North Carolina to be fatally injured we will fight, and they might just as well understand it. We have poured our lifeblood into this thing and done so because it was a principle with us. It is not characteristic of our folks to surrender a principle.

I remind you that years before the Legislature of North Carolina legalized public health service in '77 the doctors were carrying the health burden on their own shoulders alone and unaided. Yea, more! They

fought for it against prejudice and, in the language of another, "fought a heroic fight like noble sons of Zeus against Hell and Death."

And when the Legislature created it, they only appropriated one hundred dollars a year to it, and the doctors carried the burden on and on. Then they appropriated two thousand dollars a year, and yet we wavered not. I declare to you that the public health service in North Carolina belongs to the medical profession. It is yours not by the accident of discovery; it is yours not by the power of the broad sword of gory conquest; it is yours, gentlemen, by the divine right of creation. But at the same time and with equal, if not more, emphasis I remind you that the public health service of North Carolina was yours and is yours to be administered in an unselfish manner for the great good of all the people in North Carolina.

Into this splendid group of choice spirits who have been battling for humanity through the years, it is my proud privilege to welcome as our co-laborers in this field, the dental profession and the sanitary engineers, both of whom are carrying-on tonight as perhaps they never have before as loyal and as earnest and as true as ever you fought for this splendid service.

The North Carolina State Board of Health has a great past. It has served well. Our industrial development has been tremendously helped by it. The death rate in North Carolina has been reduced from more than thirty-four per cent in 1914 to approximately ten per cent in 1932. Several diseases which stalked the land a few years ago have become almost rarities. Our proud heritage spurs us to greater effort. The opportunities of the present and the beckonings of the future thrill us. We are engaged in a great spiritual business and we cannot fail. We will succeed. We shall overcome our obstacles and master our difficulties.

Paraphrasing the language of Swinburne in his "Ode to England," let me close by saying:

"All our past acclaims our future; Thompson's voice and Lewis' hand,
O'Hagan's faith and Wood's trust in this our chosen and chainless band,
"Bear us witness—come the world against it our health service yet shall stand."

President Epperson: I am sure we all appreciate this message brought to us from our State Health Officer, Dr. Parrott.

On behalf of this Association, Doctor, I thank you most generously.

At this time we will be favored by an address from Dr. Bagby, Director of the Bureau of Child Health, State Health Department of Virginia. The title of his paper will be, "Certain Phases of Child Health Work in Virginia."

Dr. Bagby! (Applause)

CERTAIN PHASES OF CHILD HEALTH WORK IN VIRGINIA

By Dr. B. B. Bagby

Dr. B. B. Bagby: My friends, I have never accepted an invitation that I considered a greater honor than the invitation to come and talk

to you, a heart-to-heart talk, tonight. I feel rather out of place though standing before you because I realize that so many men in this audience know more about public health than I do. As I see your literature that you send out from this state, I realize that you have a most excellent Health Department, because there is no literature that I get on my desk that I enjoy or appreciate or learn more from than I do from the literature that you send out from North Carolina. And I know that you know a great deal more about health work than I do.

Then, again, I am rather embarrassed to be here talking to the man who taught me most of my health work. I followed Dr. Hudson there in Richmond when he lived there, and one little sentence that he gave has always stood by me as my guiding motto. He said, "Bagby, remember this when you go into health work: don't ever get but one set of people mad with you at a time." (Laughter)

That is the best advice I have ever received in my life, and if you will follow that I tell you you will come near wading through.

Then there is another thing that kind of boosts me up in coming here and keeps me from feeling bad, and that is this: a wise man learns more from a fool than a fool from a wise man. Now, if you are wise, you will learn something tonight from me.

Of course, we all have these common problems and I am going to try to tell you some of the difficulties as well as the successes that we have had, or that I have had in my health work.

In these times of retrenchment we have to make a dollar go a little farther than it has ever gone before. We have to set our sails so that we will get every bit of the breath of air that is stirring.

In Virginia as in North Carolina we have fifty counties that have no health workers and I am sorry to say—and in this respect we are different from North Carolina—in about twenty-five of those counties we have at one time or another had a nurse and the people have decided that the nurse was not worth the money they were paying her. I think they were wrong but they have gotten rid of the nurse. Therefore I say that some method must be found whereby we can sell that nurse so that people will be willing to pay for her and I don't believe we can do that in the fifty counties where we have no nurse by the old time method of individual house visits. I think that is all right for cities. Don't misunderstand me. I am not talking about cities. I am talking about rural communities. If you are going to put a nurse into the rural community and make people feel that she is earning her salary you have to do something else besides house-to-house visits.

Therefore, I say that our idea of a nurse should not be that of a woman carrying a little black bag, waiting on the sick, as the Red Cross pictures in all the posters they send out, but a woman who is a teacher, an organizer, and a promoter. She should go into that work, first, to make the other person do the work, and she to pull the strings, if necessary, behind the curtain.

Let us take, for instance, school work. In Virginia we say that the health of the school child is a definite responsibility of the teacher, and the nurse goes in that school and acts as the teacher's assistant. We have in Virginia as you know a law, called the West Health Bill, which pro-

vides that every woman who teaches school must take a course in health education and pass an examination on it, particularly on how to make an inspection of school children, teach health and make an inspection. So our nurses who go into the school are told that their job is not to inspect the children but to let the teacher do the inspecting, first, and that teacher turns over to the nurse for her inspection the children that she thinks are questionable and the nurse or the health officer in examining those children examines those children not so much for the good it does those children as for the instruction it gives that teacher so that she will know how to meet similar conditions in other children.

I am thoroughly convinced and yet I haven't been able to put it into practice that instead of the health officer examining every child every year it will be a great deal better for him to let the teacher inspect those children first and if necessary let the nurse check them over a second time and to bring to the health officer the children who are failing in school or who are doing poor work in school on account of probably physical disability and let him examine those children in the presence of the mothers. If he examines ten children in that way I feel he will do more good than if he inspects superficially a hundred children one right behind the other, row after row.

I may be wrong, gentlemen. I don't know. A great many people don't agree with me on that but it does seem to me that we ought to give the children who need it a little more careful examination than we have been giving them, and put a little more work on the teacher for the inspection of the normal children.

The next thing in connection with the work in the school that I think is important is this: I am convinced that a large part of the prevention of sickness in the future and the prolongation of life is going to be in direct proportion to the amount of health education that our school children receive in the schools. I was very much impressed a few minutes ago with Dr. Parrott's talk. It seems to me that if we ever should put first things first now is the time to do it and there is certainly nothing more important than the teaching of health education.

I don't know how many of your people are High Church Methodists. Probably a good many more ought to be than are but if you are High Church Methodists you will have studied that book called, "Methodists in Kingdom Extension." In that book it says that half the sicknesses and half the deaths that occur in the people of the United States today can and should be prevented, and I don't think they are far wrong. If half the sickness and half the deaths that occur in the United States can and should be prevented, my friends, we have to do more health education to prevent these unnecessary sicknesses and deaths.

Not only should we teach health but our school teachers should teach health. But if you go through your schools—listen to me now, I am telling you something that I didn't do—and ask your children in the fifth grade what they are supposed to learn in hygiene or health, what was their course for the month before, you will find there are some teachers that are teaching that thing to perfection. The children answer the things bip-bip-bip, like that. For instance, take the heart. If they are teaching the heart and you go into some school and say to the children,

"What does the heart do?" they will say, "Pump good." If you say, "What blood vessels are carried from the heart?" they will answer, "The arteries." If you ask, "What are the ones that bring it back?" they will answer, "The veins."

They answer those questions like they recite the multiplication table.

You go into another school however and ask the children the questions and you find they haven't learned one single, solitary thing.

I used to go into schools and make talks about nutrition and I found that every child from the time he enters the first grade knows what to eat, but if you health officers and you nurses, instead of making talks will follow the practice of going into school rooms and asking those children two or three questions on what they have learned the month before, you will find that the teacher in the future will pay a whole lot more attention to health education than she has in the past. She doesn't pay any attention to health education because nobody ever checks up on her.

For years the National Education Association has said the most important subject taught in the school is health and yet if you go into the average school and they don't know you are a doctor and you ask them what is the most important subject they learn in school they will tell you everything under the sun, music, playing baseball, and everything else, and health comes last. Why? Because the teacher who is supposed to teach health education doesn't know, herself, the importance of it and nobody is checking up on her like they check her up on geography and on history.

So that is one thing I advise you to do: go into your schools and see what your teachers are doing along health education lines.

The next thing, my friends, is organization.

It seems to me that every nurse ought to carry at least one class in home hygiene, care of the sick, at all times. I believe that is one of the most important things you can do, that is, put on some similar course of study. Leave those people, and then when you want anything done you have an organized group ready to do it.

Down in Southampton County where I happened to work about two years ago I organized a great many classes on home hygiene, care of the sick, among the white people, and what is known as a correspondence course for mothers among the colored people. I had nine hundred colored people one year take that correspondence course for mothers and four hundred finished that course of twelve lessons. When I got ready to put on a health program in that county I simply told them what I wanted to do and the women in those classes put the program over. In other words, I put on a diphtheria vaccination campaign there among the colored children without a single home visit being made by the nurse or me. We completed an inoculation of 1471 children and fifty-eight per cent of those children were pre-school children, without a single visit being made by the nurse or me. Why? Because we organized those counties into groups and we made the teachers and the people in those classes responsible for getting out those children, and they got them out.

When it came to putting glasses on the children in that county, we put glasses on 122 indigent children in one year and not a single home

visit was made by the nurse or me to get a child to that clinic, nor to raise the price of the glasses, which was three dollars.

We arranged the clinic. We arranged with the local people for the transportation. We arranged with the local people to raise funds, and we never made a single solitary home visit. Yet we put glasses on 122 indigent children and every one of those children had a certificate from the doctor, the school teacher, and the deacon in the church or a church official to the effect that they were indigent children. And when that deacon signed a certificate that those children were indigent and unable to pay the regular prices of the glasses he knew that his church would have to raise the money to pay for them. (Laughter)

We held that clinic on a Wednesday and we sent the letters out on a Thursday and by Sunday a week we had $714 raised in that cotton-picking community that borders North Carolina to pay for the glasses, raised from the churches of that community. Why? Because we had organized our county and they responded because they knew we meant business and they wanted to help us. We could not have done that to save our lives unless we had organized.

Therefore I say, my friends, that you, the nurses, and you, the health officers, should do more organization, more promoting, more health education, even if you have to do less home visiting.

In our work in the counties that have no nurse we have a woman, Miss Nancy Vance, who works entirely with organizations. And, by the way, she works not only with the P. T. A., but with the W. C. T. U., and the Woman's Club, and the Farm Demonstration Club, and the churches, and any organization that has a health committee. If they are supposed to have a health committee she goes in and asks them whether or not they have. She says, "Have you got a health committee? If you haven't, why haven't you?" Then she finds a good chairman for the health committee.

In her first two months' work last year on this particular campaign she found less than ten per cent of the organizations of the state of Virginia with health committees or chairmen of health committees, I mean in organizations that were supposed to have health committees. And the reason they didn't have health committees was because they had had a health committee in years gone by and the health committee didn't know what to do and nobody told them what to do and so the next year they just didn't appoint a health committee.

So we got together last fall and we got out this little slip I am passing around now. We passed it out to each one of those chairmen and said, "Now, here is what you can do: you can make this report not to us but to your committee once a month, or once a year, and if they do all that is listed they will do right much and we will be satisfied."

I don't know if that is a good thing for counties that have no nurse why it isn't equally as good a thing for counties that have a nurse and a health officer. Why shouldn't every one of your organizations have a child health committee? Why shouldn't they have a Child Health Chairman? And why shouldn't they do either something like that or something that you can substitute in place of it?

Then I should like to talk a little bit about our midwife problem.

We don't know what to do with our midwives. I don't know that you know, either. If you do I would like for somebody to tell me. There are a great many people who think you ought to get rid of them. You and I and our grandchildren will not live long enough to see us rid of all the midwives. We can't educate them because they are so blooming ignorant. We can't do much toward educating them and we can't keep them from practicing because if we take away their permits they are going to continue to practice on their neighbors. So we don't know just what to do with them.

But we are trying to do something with them, and the first thing we are trying to do is this: We have employed a Rosenwald nurse to help us in the state to line up these midwives. We send this Rosenwald nurse to any county that raises as much as $50 or $25 a week. If they raise $100 we send her there for four weeks. If they raise $150 we send her for six weeks. If they raise $50 we send here there for two weeks.

Then we send a letter out. As a rule the superintendent of colored schools raises the money so we send a letter signed by the superintendent of colored schools saying the Rosenwald nurse will be at such-and-such a place at such-an-such a date, at such-and-such an hour and we want all the people of the neighborhood to meet her. So they all come out and she gives them a simple demonstration in prenatal care and particularly in making the bed up for the expectant mother.

Then she organizes those women into a group to take the correspondence course for mothers, to be taught by the teacher, generally the teacher of the school. Then when she comes back three months after that she quizzes them to find out what they have done and she gives them another demonstration and gives them some more work to do until she comes back again.

In that way the poorest county in Virginia can find $50 to pay for a Rosenwald nurse. And this Rosenwald nurse then not only teaches the midwives what to do with their patients but she teaches the patients what to expect of the midwives.

In addition to that inasmuch as the teacher of the school has to teach the class that takes the correspondence course for mothers, the teacher learns more about health education and becomes more interested in health, and as long as she lives she is a little better health teacher in her public school than she would be otherwise.

Finally, by group thinking, those women decide that they are going to make their homes sanitary, that they are going to build sanitary toilets in every home. In class after class in that county that we organized, every single member got a sanitary toilet in her home. Why? Because it was fashionable to have a sanitary toilet and a nigger, you know, is a great one for fashion. He doesn't want anybody to leave him behind when it comes to fashion. So it became fashionable to have a sanitary toilet or it became fashionable to have the children vaccinated for diphtheria, or for a woman not to sleep in the same bed with a baby.

We teach them in one demonstration how to make a bed out of a chair

or a box, and when the baby comes it is not fashionable for the mother to sleep with that baby.

So we find that even in remote sections of the county by organizing our niggers we can put over a campaign that really amounts to something.

Then, our Rosenwald nurse in addition to teaching these classes takes that midwife out with her and goes to see a prenatal case and she demonstrates to that midwife what service to render to that prenatal case. If it is a postnatal case she takes that midwife out and demonstrates to her what to do for a postnatal case and for the infant. In other words, our nurse doesn't go out to instruct the mother. She goes out to instruct the midwife. Do you see the difference? That is done so that the midwife may continue her work after she is gone.

We have been so much pleased with this work that we have decided to put on three of these nurses instead of one and I believe the plan is so practical and so simple that there isn't any reason why any county, poor as it is, can't have the services of this nurse when it only takes $50 for her service a year, or more if you want her longer.

In addition to what I have told you in connection with these prenatal cases, we are trying to tell our midwives this: for years we have stressed the fact that you must put drops in a baby's eyes and you must do this, that, and the other thing. The next campaign we put on is going to be along these lines: that as soon as a midwife is called we are requesting her to give to that patient a bulletin on prenatal care. We believe that if every expectant mother gets a bulletin, as soon as she knows she is pregnant, on prenatal care that will do more toward decreasing the maternal deaths than anything we know of. And of course in that prenatal care we say that the first thing a woman should do is to consult a physician.

So the first thing we do is to tell the midwife to give to every expectant mother a book on prenatal care, whether she can read or not. If she can't read it her neighbors can read it for her.

The second thing, we are hoping to work up to the ideal that every expectant mother shall see a physician at least once before delivery and once six weeks after delivery.

Within the last few weeks we have decided to grade some of our midwives. As it is now we give the same permit to all midwives. In a few cases we are going to grade our midwives from an A midwife, who is a trained nurse with a midwife's permit, down to E. E means nothing, like most of those we have in Virginia. Most of them will be E's, I reckon. Then we will print on the back of that midwife permit exactly what A, B, C, D, and E stand for. If you want any of those you can send up to me and I will be glad if I get them printed to send them to you.

In addition to that, we are trying to get some better women to take up the midwife course.

In this work of the Rosenwald nurse, one of the most important things she has to do is to pick out in her group of women who take this course, this correspondence course for mothers, a woman who will go to Petersburg and take this doctor's helper course. We have in

Petersburg, at the State Normal School, and at Christiansburg, a colored school, and at the University of Virginia, for whites, each year a course that we call a course for doctor's helpers. A nigger can go to that one at Petersburg for three and a half dollars a week. She can stay a whole week up there, get a room and board and instruction for three and a half dollars.

We are trying to get the more intelligent and the better educated women to take this course, that they may go back home and supplant these old ignorant illiterate midwives.

My time is about up. I could keep on talking another hour in this rambling way but I know you all want to get over into this next big meeting here and you have been so patient that I won't keep you but a very little while longer.

There is one thing though we are trying to do in Virginia at the present time and I hope we won't be long in doing it but I would like to see North Carolina beat us to it if we are very long, and that is this: we are trying to get a health education course in the high schools of the state of Virginia.

In 1914 when I practiced medicine in West Point, Virginia, I was sent for to see the baby of a Swedish woman. The baby was fourteen months old. A bee had stung it on its leg. I reckon it was a bee. It was a bee, a wasp, hornet, or something. Anyway, I looked at that baby and I had never seen up until then and have not seen since a more perfect specimen. I asked this woman how she fed her baby and how she clothed it. She was giving this baby, in 1914, sun baths. Just imagine giving a baby sun baths in 1914! She was giving it tomato juice and orange juice way back in 1914 that early in life. She had fed it on greens ever since it was a very young infant. She didn't give it cod liver oil. That is about the only thing she didn't give it that we give to our babies pretty generally nowadays.

The thought occurred to me, if you take a woman and put her on a desert isle and she isn't contaminated by neighbors, will she know by instinct how to rear her babies? This woman didn't know a word of English so she couldn't have learned a thing from her neighbors. There was just one possibility and I said to her, "Mrs. So-and-so, have you got that book called 'Holt's Care on Feeding of Infants?'"

That was the only book published on infant feeding in those days. I see some of the ladies smiling. They apparently are familiar with the book. Today all our babies practically are brought up according to Holt's "Care on Feeding of Infants."

She said, "No, I can't read the English language."

"Well," I said, "did you know how to rear this baby, by intuition?"

She said, "Oh, no, indeed!"

I said, "How did you know?"

"Oh," she said, "I am a graduate from a high school in Sweden and every woman who graduates from a high school in Sweden must have studied and passed an examination on infant care. And," she said, "in addition to that every woman who graduates from a high school in Sweden must have studied and passed an examination on home nursing, on cooking, on nutrition, and on sewing." She said, "When I became

pregnant I went to my books on prenatal care and I learned what to do. When the baby was born I went to my schoolbooks and I learned what to do to care for my baby. It was not intuition but knowledge I acquired at high school."

Then I said in 1914—and I still say it today—Lord, how long will it be before every high school girl in America will have to study and pass an examination on infant care, home nursing, nutrition, and sewing?

No longer ago than last week I met the president of a normal school in Virginia, the biggest one there. He got up and talked to those people and he said, "What we need in this country today is to teach our citizens the subjects that will make them better citizens in this community. What we need to do is to teach our children at school the practical things of life." And then he sat down, and I got up and I told that audience, "Here is a practical thing for you to do: what on earth is more practical than to teach a woman in high school to know how to be a good mother?"

My friends, if we could teach our children in the high school and make it compulsory on every woman in high school, and give credit for it like we give for Latin, say a quarter of a unit for accident prevention, with fire prevention, first aid, and automobile safety, if we could give a quarter of a unit the second year for community health, teaching our children why we chlorinate our water, why we have sewage systems, why we have a state tuberculosis sanatorium, why we have a law for sterilizing the feebleminded, why we have milk inspection and pasteurization of milk and food inspection, if we could teach them in the third year practical things about home nursing, if we could teach them in the fourth year infant care, child care, mental care, then we would see a definite decrease in sickness and a definite prolongation of life. Not only that but if we taught those high school girls mental care, for infants, I mean, in ten or fifteen years the discipline in the schools of this country would be definitely changed.

That is our program, my friends. I don't say we are putting it over. But that is what we are trying to do.

I appreciate your kind attention and I hope that I have given you something that you will carry home and think about that is not quite the ordinary thing you are just in the habit of doing.

Thank you. (Applause)

President Epperson: Dr. Bagby has given us many things to think about. I have a feeling that probably you may desire to enter into a brief discussion of his paper. It is not indicated on the program that this paper is open for discussion, or this address, but I am sure if there are any of you that have any questions you would like to ask Dr. Bagby he will be very happy to answer them. For just a few minutes we will leave the matter open for discussion if any of you would like to discuss it. If there be no discussion, Dr. Bagby, on behalf of this organization I wish to thank you very much for coming over here. It was very kind of you to do so.

Our program has been concluded for the evening. We are now at that point where election of officers is in order. In keeping with the

resolution which was passed this morning, I now declare nominations in order for the President for the ensuing year. Who will you have for President?

Dr. A. C. Bulla (Raleigh): Mr. President, if nominations are in order I will be glad to nominate my friend whom I have known for many years and who according to my belief is well fitted to occupy this position. This morning when we had some discussion as to whether we should nominate from the floor or have a nominating committee I was strong for the committee hoping at the time that we would hold in line the man I am about to nominate, Dr. C. N. Sisk.

. . . The nomination was seconded by several. . . . (Applause)

President Epperson: Dr. Sisk of Rockingham has been nominated. Are there other nominations?

Dr. R. S. McGeachy (Greenville): I move that the nominations be closed and the Secretary be instructed to cast the unanimous vote of this organization for Dr. C. N. Sisk for President.

. . . The motion was seconded, put to a vote and unanimously carried. . . .

President Epperson: I will call on the Secretary.

Secretary Mitchell: Mr. President, it gives me profound pleasure to cast the vote of this Association declaring Dr. Sisk our President for the ensuing year. (Applause) (Calls for speech)

President-Elect Sisk: Ladies and Gentlemen, I certainly appreciate this honor and I shall endeavor to justify the confidence that you have placed in me. (Applause)

President Epperson: Nominations are now in order for Vice-President for the ensuing year.

Dr. R. E. Broadway (Tarboro): I nominate Dr. F. M. Register as Vice-President.

. . . The nomination was duly seconded. . . .

President Epperson: Dr. F. M. Register, of Goldsboro, is nominated for Vice-President. Are there further nominations?

. . . It was moved by Dr. J. Roy Hege (Winston-Salem) and seconded by Dr. Williams that the nominations be closed. . . .

President Epperson: A motion has been made and duly seconded that the nominations be closed. Are you ready for the question?

. . . The motion was put to a vote and carried. . . .

President Epperson: I declare Dr. F. M. Register duly elected Vice-President of this organization for the ensuing year.

President Epperson declared nominations for Secretary in order.

Dr. J. H. Woodcock, Hendersonville, nominated Dr. J. Roy Hege, Winston-Salem; Dr. C. C. Hudson, Greensboro, nominated Ernest Branch, D.D.S., Raleigh; Dr. A. C. Bulla, Raleigh, nominated Dr. "Zach" Mitchell, Weldon. Dr. Hege and Dr. Branch withdrew their names. Dr. Mitchell was elected.

President Epperson: I should like to ask Dr. Symington at this time to escort the newly-elected president to the presiding officers' table.

. . . President-Elect Sisk was escorted to the rostrum by Dr. Symington. . . . (Laughter and applause)

PRESIDENT EPPERSON: Just before I retire I believe the Resolutions Committee requested that I appoint a committee to confer with Dr. Parrott about certain matters of policy from time to time. I should like to appoint on that committee the incoming President, Dr. Sisk, Dr. L. L. Williams of Fayetteville, Dr. Bulla of Raleigh, and Dr. Harden of Lumberton. I believe the resolution called for the appointment of a committee of four.

I now turn the meeting over to you, Mr. President. (Applause)

PRESIDENT-ELECT SISK: If I remember correctly that committee was to include Dr. Epperson.

SECRETARY MITCHELL: That is correct.

PRESIDENT-ELECT SISK: So Dr. Epperson will be chairman of that committee.

I believe there was also a motion passed at the session this afternoon to appoint a committee to coöperate with Dr. Norton on getting the $25 fee charged health officers for the privilege of practicing medicine repealed, or to have them relieved of having to pay this fee. Is Dr. Norton present at this time?

DR. EPPERSON: I don't think he has been here the whole day.

PRESIDENT-ELECT SISK: I will appoint on that committee Dr. Carlton, Dr. Morris, and Dr. Armstrong.

Is there anything further to come before the meeting? If not, a motion is in order to adjourn.

DR. EPPERSON: Mr. President, I move we adjourn.

. . . The motion was seconded and carried. The meeting thereupon adjourned at nine-fifteen o'clock. . . .

ALPHABETICAL LIST OF FELLOWS FOR 1932 WITH POST OFFICE ADDRESSES

Name	*Address*
*Abel, J. F., (Hon.)	Waynesville
Abernathy, H. N., (Hon.)	Charlotte
*Abernathy, Miles B.	Reidsville
*Abernethy, Claude O.	Raleigh
Achard, Lucien	Morganton
Adams, C. A. (Hon.)	Durham
Adams, Charles E. (Hon.)	Gastonia
Adams, Edw. E.	Murphy
Adams, J. L.	Asheville
*Adams, M. R. (Hon.)	Statesville
Adams, N. B.	Murphy
*Ader, O. L.	Walkertown
Adkins, M. T.	Durham
Alexander, Geo.	Asheville
Alexander, James M.	Statesville
Alexander, Jas. R., (Hon.)	Charlotte
Alexander, M. Janet	Montgomery India (Mecklenburg Co.)
*Allen, William	Charlotte
*Allen, Chas. I.	Wadesboro
*Allen, Jos. A.	New London
Allen, M. H.	Cramerton
Allgood, R. A.	Fayetteville
Alyea, Edwin P.	Durham
Ambler, Chase P. (Hon.)	Asheville
Amoss, Harold L.	Durham
Anders, McT. G. (Hon.)	Gastonia
*Anderson, Albert (Hon.)	Raleigh
*Anderson, Chas. A. (Hon.)	Burlington
*Anderson, R. S.	Statesville
Anderson, Thomas Eli (Hon.)	Statesville
Anderson, W. B.	Durham
Anderson, Wade H.	Wilson
*Andrews, E. D.	Salisbury
Angel, Furman	Franklin
Anthony, J. E.	Kings Mountain
*Anthony, W. A.	Gastonia
Archer, Isaac J.	Black Mountain
*Armstrong C. W.	Salisbury
*Asbill, David S.	Statesville
*Ashburn, C. W.	Statesville
Ashby, E. C.	Mount Airy
*Ashby, J. W.	Raleigh
*Ashe, J. R.	Charlotte
Ashecraft, J. E. (Hon.)	Fayetteville
Ashford, Chas. Hall	New Bern
*Ashworth, B. L. (Hon.)	Marion
*Ashworth, W. C. (Hon.)	Greensboro
Austin, D. R.	Charlotte
Austin, Frederick De Costa	Charlotte
*Austin, J. W., OALR	High Point
Averitt, H. O.	Cameron
*Averitt, K. G. (Hon.)	Cedar Creek
Aycock, F. M.	Princeton
*Aydlett, H. T.	Greensboro
Aydlette, Jos. P.	Earl
Baier, Geo. F., Jr.	W. Asheville
*Bailey, C. W.	Rocky Mount
*Baird, C. A.	Mount Airy
Baker, Horace M.	Lumberton
*Baker, J. M. (Hon.)	Tarboro
Baker, W. E.	Arden
Bandy, W. G.	Lincolnton
*Banner, A. C., OALR	Greensboro
*Banner, Chas. W., OALR (Hon.)	Greensboro
Barbee, G. S.	Zebulon
Barefoot, Graham B.	Wilmington
Barker, C. S.	New Bern
*Barnes, Dempsey	Asheboro
Barnes, J. T.	Asheboro
Barnes, Tiffany	Asheboro
Barrett, H. P.	Charlotte
*Barrett, J. M.	Greenville
*Barron, A. A.	Charlotte
*Basnight, Thos. G.	Stokes
Bass, H. H. (Hon.)	Durham
Bass, Spencer P.	Tarboro
Bass, H. H., Jr.	Henderson
Battle, Geo. C.	Asheville
Battle, Ivan P.	Rocky Mount

*** Present at 1932 Meeting at Winston-Salem.**

Name	*Address*
*Battle, John T. J. (Hon.)	Greensboro
Battle, N. P.	Rocky Mount
Baynes, R. H.	Durham
*Beall, L. G.	Black Mountain
*Beam, H. M.	Roxboro
Beam, R. S., OALR	Lumberton
*Beasley, E. B.	Fountain
Beckwith, R. P.	Roanoke Rapids
Beers, David L.	Asheville
Belk, Geo. W.	Gastonia
*Bell, A. E.	Mooresville
Bell, Carl W.	Raleigh
*Bell, F. O.	Burlington
Bell, J. C.	Maysville
*Bell, G. E.	Wilson
Bellamy, Robert H.	Wilmington
*Belton, J. F.	Winston-Salem
*Benbow, E. V.	Winston-Salem
Bender, E. L.	New Bern
Bennett, E. C.	Elizabethtown
Bennett, Jos. H.	Wadesboro
Benton, Geo. Ruffin	Fremont
*Berry, John	Greensboro
*Best, Benj. W.	Greensboro
Best, D. E.	Goldsboro
Best, Henry B.	Wilson
Biggs, Montgomery H.,	Rutherfordton
*Bigler, V. L.	Albemarle
Billings, G. M.	Morganton
Bitting, Numa Duncan	Durham
*Bittinger, S. M.	Sanatorium
*Bizzell, M. E.	Goldsboro
*Black, George Wm.	Charlotte
Black, O. R.	Landis
Blackshear, T. J.	Wilson
Blackwelder, Verne H.	Lenoir
*Blair, Andrew	Charlotte
*Blair, A. McNiel	Southern Pines
Blair, J. L.	Gastonia
Blair, M. P.	Marshville
Blanchard, T. W.	Hobbsville
Blue, A. McN.	Carthage
Blue, Waylon	Jonesboro
Blumberg, Alfred	Oteen
Boddie, Needham P. (Hon.)	Durham
Boice, E. S.	Rocky Mount
Bolt, C. A.	Morrisville
Boney, Elwood R.	Kinston
*Bonner, J. B.	Aurora
*Bonner, K. P. B.	Morehead City
*Bonner, O. B., OALR	High Point
Booker, Edwin N.	Selma
*Booker, L. S.	Durham
*Boone, W. H.	Durham
*Boone, W. W.	Durham
*Bost, T. C.	Charlotte
Bostic, Wm. C.	Forest City
Bostic, W. C., Jr.	Forest City
*Bowers, M. A.	Winston-Salem
Bowles, Francis N.	Durham
Bowman, C. R.	Kannapolis
Bowman, E. L.	McDonalds
Bowman, H. E.	Aberdeen
Bowman, H. P.	Greensboro
Boyles, J. H.	Greensboro
Bunn, J. J.	Mt. Pleasant
Braddy, Wade H.	Burlington
*Bradford, W. Z.	Charlotte
Bradshaw, T. G.	Wilson
Bradsher, J. S.	Stovall
*Brandon, W. O.	North Wilkesboro
Brantley, Hassell	Spring Hope
Brantley, J. C.	Spring Hope
Braswell, Wm. Edgar	Sandy Ridge
Brawley, M. H., OALR	Salisbury
Brawley, R. L.	Mooresville
*Bray, T. L.	Plymouth
Brenizer, A. G., Jr.	Charlotte
*Brewer, J. S.	Roseboro
*Brewton, W. A.	Enka
*Bridger, D. H.	Bladenboro
*Bridges, D. T.	Lattimore
Brinkley, H. M.	Durham
Brinn, T. P.	Hertford
Bristow, C. O.	Rockingham
Britt, C. S.	Charlotte
Britt, J. N.	Lumberton
*Britt, T. C.	Washington
*Broadway, R. E.	Tarboro
*Brockmann, Harry L.	High Point
*Brooks, B. U.	Durham
*Brooks, R. E.	Burlington
Brookshire, H. G.	Asheville
*Broun, M. S., OALR	Asheville
*Brown, C. E.	Salisbury
*Brown, F. B.	Winston-Salem

* Present at 1932 Meeting at Winston-Salem.

Name	*Address*
*Brown, G. A. (Hon.)	Mt. Ulla
Brown, G. W.	Raeford
Brown, J. S., Sr. (Hon.)	Hendersonville
Brown, Kermit E.	Asheville
*Brown, W. M. B.	Greenville
*Brownsberger, John F.	Asheville
Bryan, Lorenzo D.	Snead's Ferry
*Bryant, Chas. G.	Jonesville
*Buchanan, L. T.	Laurinburg
Buchanan, C. L.	Union Mills
Buck, David M.	Asheville
Buckner, J. M.	Swannanoa
Buckner, Margaret	Charlotte
Buffaloe, J. S.	Garner
Bugg, C. R.	Raleigh
Buie, Roderick M.	Greensboro
*Bulla, A. C.	Raleigh
Bullard, G. F.	Elizabethtown
*Bullitt, J. B.	Chapel Hill
Bullock, Thomas C. (Hon),	Autryville
Bulluck, Ernest S.	Wilmington
Bunn, J. J.	Mount Pleasant
Burleson, W. B.	Plumtree
Burnett, B. S.	Fort Bragg
*Burns, J. E.	Concord
*Burrus, John T. (Hon.)	High Point
Burt, B. W.	Holly Springs
Burt, S. P.	Louisburg
*Butler, Leroy J.	Winston-Salem
Butt, R. B.	Marion
*Byerly, Andrew B.	Cooleemee
*Bynum, John (Hon.)	Winston-Salem
Byrd, W. C.	Morrisville
Caddell, G. C.	Hoffman
*Caldwell, D. G.	Concord
*Campbell, Alton C.	Raleigh
Campbell, A. S.	Durham
Campbell, J. W.	Gastonia
Candler, Chas. Z.	Sylva
Cannady, Samuel H.	Oxford
*Carlton, Romulus L.	Winston-Salem
*Carlyle, J. B.	Burlington
Carmichael, T. W.	Rowland
*Carpenter, Coy C.	Wake Forest
Carr, Eugene M.	Asheville
*Carr, M. L.	LaGrange
*Carr, Ransom Lee	Rose Hill
*Carrington, G. L.	Burlington
Carroll, E. D. Dixon (Hon.)	Raleigh
Carroll, F. W.	Hookerton
Carter, Bayard	Durham
Carter, H. W., OALR	Washington
Carter, P. C.	Madison
*Carter, Thos. L.	Gatesville
Castelloe, Cola	Windsor
*Casstevens, J. C.	Winston-Salem
*Casteen, Kenan	Leaksville
*Cater, C. D.	Greensboro
*Cater, R. L.	Greensboro
*Cathell, E. J.	Lexington
*Caviness, Zebulon M.	Raleigh
*Caviness, V. S.	Raleigh
Chadwick, W. S.	Beaufort
Chapin, Wm. Burdette	Pittsboro
Chester, P. J., OALR	Southern Pines
*Cheek, C. E.	Fuquay Springs
Cheesborough, Thos. P. (Hon.)	Biltmore
Chiles, George G.	Sanford
Choate, J. W.	Salisbury
Clark, D. D.	Clarkton
Clark, E. S.	Clarkton
Clark, H. S.	Asheville
*Clement, Edward B., OALR,	Salisbury
Cliff, B. F.	Hendersonville
Clinton, Roland S.	Gastonia
Clyatt, Claude Eugene	Denton
*Cobb, Donnell B.	Goldsboro
*Cobb, Wm. H., Jr. (Hon.)	Goldsboro
Cocke, C. H.	Asheville
Cocke, E. R.	Asheville
Cocke, Jere E.	Asheville
*Coddington, H. A.	Wilmington
Coe, S. S.	High Point
Colby, C. DeW.	Asheville
Cole, Walter F.	Greensboro
Coleman, G. S.	Kenly
Collings, Ruth M.	Greensboro
*Combs, Fielding	Winston-Salem
*Combs, Jos. J.	Raleigh
*Cook, H. L.	Greensboro
*Cook, J. L.	Winston-Salem
*Cooke, G. C.	Winston-Salem
*Cooper, G. M.	Raleigh
Coppedge, T. O.	Nashville

* Present at 1932 Meeting at Winston-Salem.

Name	*Address*
*Coppridge, W. M.	Durham
Corbett, Clarence Lee	Dunn
Corbett, J. P.	Swansboro
Cornwell, A. M.	Lincolnton
*Costner, W. V.	Lincolnton
Cotten, Clyde E. (Hon.)	Asheville
*Couch, V. F.	Winston-Salem
Council, J. B. (Hon.)	Salisbury
Covington, Platt W.	Salt Lake City
Cox, E. L. (Hon.)	Jacksonville
Cox, G. S.	Tabor
Cox, Thomas A.	Hertford
Cozart, B. F.	Reidsville
*Cozart, S. R.	Greensboro
*Cozart, W. S.	Fuquay Springs
Craddock, A. B.	Asheville
Craft, C. C.	Hickory
Craig, S. Douglas	Winston-Salem
Cranmer, J. B.	Wilmington
Craven, F. C.	Asheboro
Craven, Thomas	Huntersville
Craven, W. W.	Charlotte
*Crawford, Robt. H.	Rutherfordton
Crawford, W. J.	Goldsboro
Crisp, S. M.	Greenville
Cromartie, R. S.	Elizabethtown
Croom, G. H.	Asheville
Crouch, A. McR.	Wilmington
Crouch, T. D.	Stony Point
*Crow, S. L.	Asheville
Crowell, A. J. (Hon.)	Charlotte
*Crowell, L. A. (Hon.)	Lincolnton
*Crowell, L. A., Jr.	Lincolnton
Crumpler, Paul	Clinton
*Cummings, M. P.	Reidsville
*Cutchin, J. Henry	Whitakers
Dale, G. C.	Goldsboro
Daligny, Charles (Hon.)	Troy
*Dalton, Wm. N.	Winston-Salem
*Daniel, N. C.	Oxford
Daniels, O. C., OALR	Oriental
Daniels, R. L.	New Bern
Davenport, C. A.	Hertford
Davidian, Varton A.	Smithfield
*Davidson, Jno. E. S. (Hon.),	Charlotte
Davis, F. M.	Canton
Davis, George	Beaufort
*Davis, Jas. W.	Statesville
*Davis, P. B., Sheraton Hotel,	High Point
*Davis, R. B.	Greensboro
*Davis, Stephen W.	Charlotte
*Davis, Thomas W., OALR (Hon.)	Winston-Salem
Davison, Wilburt C.	Durham
Dawson, W. E.	Hookerton
Deans, A. W.	Battleboro
DeArmon, J. McC. (Hon.)	Charlotte
*DeLaney, C. O.	Winston-Salem
Dees, D. A., OALR	Bayboro
*Dees, R. E.	Greensboro
*Dees, Rigdon O.	Greensboro
*Dewar, William B.	Raleigh
*Dick, Julius V.	Gibsonville
*Dickie, J. W.	Southern Pines
*Dickinson, E. T. (Hon.)	Wilson
Dillard, G. P.	Draper
*Dixon, G. G.	Ayden
Dixon, Guy E. (Hon.)	Hendersonville
*Dixon, Hubert C.	Leaksville
Dixon, W. H.	Rocky Mount
*Dixon, Wm. H. (Hon.)	Kinston
*Dodge, Eva F.	Winston-Salem
*Donnelly, J.	Huntersville
*Drewry, Wm. H.	Cooleemee
Duckett, V. H.	Canton
Duffy, R. N.	New Bern
Duguid, Jos. W.	Dover
Duncan, Amos C.	Forest City
*Duncan, S. A.	Benson
Dunlap, L. V.	Albemarle
Durham, C. W.	Greensboro
Dyer, John W.	High Point
*Eagle, J. C.	Spencer
Eagle, Watt W.	Durham
Eagles, Charles S.	Wilson
Easley, P. S.	Statesville
*Easom, H. F.	Sanatorium
Eckel, O. F.	Asheville
Eddleman, Hall M. (Hon.)	Gastonia
Edgerton, Jas. L. (Hon.)	Hendersonville
Edwards, B. O.	Asheville
Edwards, C. J.	Raleigh
*Edwards, F. D.	Lawndale, Rt. 1
*Edwards, J. D.	Siler City

* Present at 1932 Meeting at Winston-Salem.

Name	*Address*
*Edwards, V. E.	Greensboro
*Eldridge, Chas. P.	Raleigh
*Elias, Lewis W.	Asheville
*Eller, Albert J.	Readybranch
*Ellington, A. J., OALR.	Burlington
*Elliott, A. H.	Wilmington
Elliott, J. A.	Charlotte
Elliott, J. C.	Oxford
*Elliott, W. F., OALR.	Lincolnton
Ellis, R. C. (Hon.)	Shelby
Erwin, Evan A.	Laurinburg
Evans, J. E.	Wilmington
*Evans, L. B.	Windsor
Everett, A. C.	Rockingham
Faison, Yates W.	Charlotte
*Farrington, R. K.	Thomasville
Farrior, J. W.	Warsaw
Farthing, L. E.	Wilmington
*Fassett, Burton W., OALR.	Durham
Faulk, J. G.	Monroe
Fauntleroy, Jas. W.	Zirconia
Fearing, Isaiah	Elizabeth City
Felton, R. L.	Carthage
*Felts, Robt. L.	Durham
Fenner, Edwin F.	Henderson
Ferebee, C. G.	Morehead City
*Ferguson, R. T.	Charlotte
Ferrell, T. J.	Rocky Mount
Fetner, L. M.	Charlotte
*Fields, Leonard E.	Chapel Hill
Finch, O. E.	Raleigh
*Fitch, W. E.	Burlington
Fitzgerald, J. H., OALR.	Smithfield
*Flagge, Philip W.	High Point
Fleetwood, Joe A.	Conway
*Fleming, M. I.	Rocky Mount
*Flemming, Giles M.	Cleveland
*Flippin, J. M.	Pilot Mountain
Flippin, Samuel T. (Hon.)	Siloam
Flowers, Clarence A.	Wendell
Flowers, C. E.	Zebulon
Floyd, H. T.	Oteen
Floyd, L. D.	Fair Bluff
Folger, P. B.	Dobson
Ford, D. E.	New Bern
Fortune, Alex F.	Greensboro
Foster, H. H.	Norlina
Foster, J. F.	Sanford
Fox, N. A.	Greensboro
*Fox, Robert Eugene	Asheville
Fox, P. G.	Raleigh
Francis, Wm. G.	Waynesville
Franklin, Ernest W., Jr.	Burlington
*Frazier, J. W.	Badin
Freeman, J. D., OALR.	Wilmington
Freeman, R. H.	Raleigh
Freeman, Wm. T.	Biltmore
Fresh, W. M.	Hickory
Frizzelle, M. T.	Ayden
*Frye, Glenn R.	Hickory
Futrell, L. M.	Murfreesboro
*Gage, L. G.	Charlotte
Gallant, Robt. M.	Charlotte
Galloway, W. C. (Hon.) OALR.	Wilmington
Gamble, J. F.	Lincolnton
Gamble, J. R.	Lincolnton
*Gambrell, Grover C.	Lexington
Gantt, L. Rosa H.	Tryon
Garrenton, Cecil	Bethel
*Garrett, F. B.	Rockingham
*Garrison, D. A. (Hon.)	Gastonia
Garriss, F. H.	Lewiston
*Garvey, R. R.	Winston-Salem
Gaskins, J. S.	Albemarle
*Gaskins, Lewis R.	Albemarle
Gaul, Jno. Stuart	Charlotte
*Geddie, K. B.	High Point
Gentry, Geo. W.	Roxboro
George, John C.	Oteen
Gibbon, James W.	Charlotte
*Gibbon, Robert L. (Hon.)	Charlotte
Gibbs, N. M.	New Bern
Gibson, John S.	Gibson
*Gibson, M. R., OALR.	Raleigh
*Gilmore, C. M.	Greensboro
Gilmore, W. D.	Howell, Mich. (Iredell-Alexander)
Gilreath, Frank H. (Hon.)	N. Wilkesboro
*Glascock, Joy H.	Greensboro
*Glenn, C. F.	Rutherfordton
*Glenn, Lucius N.	Gastonia
Glover, F. O.	Salisbury
Godwin, G. C.	Oteen
*Gold, Ben	Shelby

* Present at 1932 Meeting at Winston-Salem.

Name	*Address*
Gold, Chas. F.	Rutherfordton
Gold, L. L.	Oakboro
*Gold, T. B.	Shelby
*Goley, Willard Coe	Graham
Goley, Wm. R.	Shallotte
*Goley, Wm. Rankin (Hon.)	Graham
*Goode, T. V.	Statesville
Goodman, A. B.	Lenoir
Goodwin, A. W. (Hon.)	Raleigh
*Goodwin, O. S.	Apex
*Gordon, Faith F.	Greensboro
Gorham, H. J.	Durham
Goudelock, Jno. J.	Monroe
*Goudge, Mabel E.	West Durham
Gouge, A. E.	Bakersville
Gouger, Geo. J. (Hon.)	Concord
Gove, Anna M. (Hon.)	Greensboro
Grady, Jas. C. (Hon.)	Kenly
*Grady, Leland V.	Wilson, Rt. 2
Grady, Wm. Earle (Hon.)	Tryon
*Grantham, Wm. L.	Asheville
*Gray, Eugene P.	Winston-Salem
*Grayson, C. S.	High Point
Green, J. C.	Greenville
Green, Thos. M.	Wilmington
*Green, Wm. W.	Tarboro
*Greene, Jos. B., OALR	Asheville
Gregg, A. D.	Liberty
*Griffin, H. L.	Star
*Griffin, H. W.	Hickory
*Griffin, M. A.	Asheville
Griffin, W. R.	Asheville
*Griffith, F. W.	Asheville
Griffith, L. M., OALR	Asheville
Griggs, W. T. (Hon.)	Poplar Branch
*Grimes, W. L.	Winston-Salem
*Groves, R. B.	Lowell
*Gwyn, H. L.	Yanceyville
*Hackney, Ben H.	Lucama
Hagaman, J. B.	Boone
Halford, Jos. W.	Lillington
Hall, James S.	Wilmington
Hall, L. S.	Yadkinville
Ham, Clem	Goldsboro
*Hamblen, E. C.	Durham
Hambrick, Robt. T.	Hickory
Hamer, Douglas, Jr.	Lenoir
Hamer, W. A.	Chadwick
*Hamilton, John H.	Raleigh
Hammond, A. F.	Pollocksville
Hand, Edgar H.	Charlotte
Hanes, F. M.	Winston-Salem
Hanes, J. L.	Pine Hall
*Hansen-Pruss, O. C. E.	Durham
*Harbison, J. W.	Shelby
Hardee, W. P.	Durham
Harden, Graham	Burlington
Harden, R. N.	Greensboro
*Hardin, E. R.	Lumberton
*Hardin, R. H.	Banner Elk
*Harding, S. A.	Mocksville
Hardy, Ira M., OALR (Hon.)	Kinston
*Harper, J. H.	Snow Hill
Harrell, S. N.	Tarboro
Harrell, W. H.	Creswell
Harrill, L. B.	Caroleen
Harris, A. G.	Fairfield
Harris, F. R. (Hon.)	Henderson
Harris, J. H.	Raleigh
*Harris, W. T.	Troy
Harrison, Edmund (Hon.)	Greensboro
*Harrison, Edward T.	High Point
Harrison, H. H.	Asheville
Harriss, Andrew H. (Hon.)	Wilmington
Hart, Deryl	Durham
*Hart, O. J.	Winston-Salem
*Hart, V. K.	Charlotte
*Hathcock, Thos. A.	Norwood
*Harvey, W. W.	Greensboro
Hatcher, M. A.	Hamlet
Hayes, A. H.	Fairmont
Hayes, R. B.	Hillsboro
Hays, B. K. (Hon.)	Oxford
*Haywood, C. L., Jr.	Durham
*Haywood, Hubert B., Jr.	Raleigh
*Hayworth, C. A.	Asheboro
Head, W. T., Campobello, S. C., Rt. 4	(Rutherford Co.)
*Hedrick, C. R.	Lenoir
*Hege, J. Roy	Winston-Salem
Helms, J. B.	Morganton
*Helms, T. L.	Randleman
*Helsabeck, C. J.	Walnut Cove

* Present at 1932 Meeting at Winston-Salem.

Name	*Address*
Helsabeck, R. S.	King
*Hemmingway, J. D.	Gastonia
Henderson, C. C.	Mount Olive
*Henderson, Jno. P.	Jacksonville
Henry, T. B.	Rockingham
Hensley, Chas. A.	Asheville
Herbert, Fred Lee	Andrews
Herbert, Wm. P.	Asheville
*Herman, Chas. B.	Statesville
Hester, Wm.	Reidsville
*Hiatt, H. B.	High Point
*Hickman, M. T.	Hudson
Hicks, Calvin S.	Durham
Hicks, I. F.	Dunn
*Hicks, V. M., Oph.	Raleigh
Highsmith, Charles (Hon.)	Dunn
*Highsmith, J. D.	Fayetteville
*Highsmith, J. F. (Hon.)	Fayetteville
Highsmith, J. F., Jr.	Fayetteville
*Highsmith, Seavy	Fayetteville
Highsmith, W. C.	Fayetteville
Hill, A. L.	Rutherfordton
Hill, J. N.	Murphy
Hill, M. D.	Smithfield
*Hill, Wm. I.	Albemarle
Hines, E. R.	Rocky Mount
Hipp, Edw. R.	Charlotte
*Hipps, A. G. T.	Asheville
*Hocutt, Battle A.	Clayton
Hodge, A. R.	Severn
Hodgin, H. H.	Red Springs
*Hoggard, J. T.	Wilmington
Hollingsworth, E. T.	Goldsboro
*Holloway, Joseph C.	Durham
Holloway, Robert Lee (Hon.)	West Durham
Hollowell, C. V.	Goldsboro
Hollyday, W. M., OALR	Asheville
Holden, E. C.	High Point
*Holmes, A. B.	Fairmont
*Holt, D. W.	Greensboro
Holt, T. J.	Warrenton
*Holt, Wm. P. (Hon.)	Erwin
*Holt, Wm. P., Jr.	Erwin
Holton, Thos. J.	Charlotte
Hood, J. Sidney	Gastonia
*Hooker, John S.	Sanatorium
*Hooks, Thel	Smithfield
Hooks, W. B.	Sanatorium
Hooper, D. D.	Sylva
Hooper, Jos. W.	Wilmington
Hoover, C. H.	Crouse
Horton, M. C., OALR	Raleigh
Horton, W. C.	Raleigh
Houck, Albert F. (Hon.)	Lenoir
Houser, E. A.	Shelby
Houser, O. J.	Charlotte
*Hovis, L. W., OALR	Charlotte
Howard, C. E.	Goldsboro
*Howard, J. R.	Concord
*Howell, W. L.	Ellerbe
Howser, Forest M.	Cherryville
*Hoyle, Hughes B.	Manteo
*Hubbard, Chas. C. (Hon.)	Farmer
*Hubbard, Fred C.	N. Wilkesboro
*Hudson, C. C.	Greensboro
Huffines, T. R.	Asheville
*Hunsucker, Chas. R.	Hickory
Hunt, J. F.	Spindale
*Hunt, W. Bryce	Lexington
Hunter, Frank P.	Warrenton
Hunter, J. P.	Cary
Hunter, L. W. (Hon.),	Charlotte, Rt. 1
*Hunter, W. Myers	Charlotte
Hunter, W. B.	Cramerton
*Hunter, W. C.	Wilson
*Hurdle, S. W.	Winston-Salem
*Huston, Jno. W.	Asheville
*Hutchens, E. M.	North Wilkesboro
Hyde, Francis Edward	Beaufort
*Hutchinson, S. S.	Bladenboro
Ingersoll, Louise M.	Asheville
Ingram, Chas. B. (Hon.)	Mt. Gilead
Irwin, Hamner C.	Pocatella, Idaho (Mecklenburg Co.)
*Ivey, H. B.	Goldsboro
*Ivey, R. R., U.S.P.H.S.	Biltmore
Jackson, C. C.	Pinetown
*Jackson, Walter Leo	High Point
Jacocks, W. P.	New York City (Lincoln Co.)
James, Albert W.	Laurinburg
James, F. P.	Laurinburg
*James, W. D.	Hamlet
*Jarboe, Parran	Greensboro
Jarman, F. G.	Roanoke Rapids

* Present at 1932 Meeting at Winston-Salem.

Name	*Address*
Jenkins, Chas. L. (Hon.)	Raleigh
*Jennings, C. W., OALR	Greensboro
*Jennings, R. G.	Thomasville
Jervey, A. J.	Tryon
Jett, Samuel G.	Reidsville
Jewett, R. D. (Hon.) OALR,	Wilmington
John, Peter	Laurinburg
*Johnson, Floyd	Whiteville
*Johnson, Geo. W.	Wilmington
*Johnson, Harry L.	Elkin
Johnson, John B.	Old Fort
*Johnson, J. R.	Ramseur
Johnson, N. M. (Hon.)	Durham
Johnson, Otis H.	Morehead City
*Johnson, Thos. C.	Lumberton
*Johnson, W. A.	Reidsville
Johnson, W. C.	Canton
*Johnson, Wingate M.	Winston-Salem
Johnston, Christopher	Durham
Johnston, J. G., OALR	Charlotte
Johnston, W. W.	Manteo
Jonas, John F.	Marion
Jones, A. G. (Hon.)	Walnut Cove
*Jones, Beverly N., OALR,	Winston-Salem
Jones, Carey C.	Apex
Jones, Catesby	Asheville
Jones, R. Duval	New Bern
Jones, Thomas J.	Lansing
Jones, T. Lester	Lansing
Jones, W. M.	Gastonia
*Jones, Wm. M.	Greensboro
Jones, W. S.	Nashville
Jordan, Chas. S. (Hon.)	Asheville
Jordan, T. M. (Hon.)	Raleigh
Jordan, Wm. S., OALR	Fayetteville
Judd, Eugene C.	Raleigh
Judd, James M. (Hon.)	Varina
*Julian, Chas. A. (Hon.)	Greensboro
Jurney, Peter C.	Turnersburg
Justice, Gaston B.	Marion
Justice, Wm. S.	Asheville
*Kapp, Henry H.	Winston-Salem
*Keever, Jas. W.	Hickory
*Keiger, Jas. A.	Greensboro
*Keiger, O. R.	Winston-Salem
*Keith, Marion Y.	Greensboro
Kelleher, L. B.	Charlotte
Kelly, Luther W.	Charlotte
Kendall, B. H.	Shelby
Kende, Tibor N.	Jersey City, N. J. (Burke Co.)
Kendrick, R. L.	Elizabeth City
*Kennedy, John P.	Charlotte
Kent, Alfred A. (Hon.),	Winter Park, Fla. (Caldwell Co.)
Ketner, Fred Y.	Concord
Kerns, T. C., OALR	Durham
Kerr, John D.	Clinton
*Kerr, Jas. E. (Hon.)	Winston-Salem
Ketchie, J. M.	Salisbury
Kibler, W. H.	Morganton
Kimberly, David, Jr.	Hot Springs
King, Edward	Asheville
*King, E. S.	Wake Forest
*King, Parks M.	Charlotte
King, Richard M.	Concord
King, Robt. Rogers	Ellensboro
Kinlaw, Wm. B.	Rocky Mount
Kinsman, Henry F.	Hamlet
Kirby, Guy S.	Marion
*Kirby, W. L.	Winston-Salem
Kirk, W. R.	Hendersonville
Kirkpatrick, W. L.	Waynesville
Kirksey, James J.	Morganton
*Kitchin, Thurman D.	Wake Forest
Klutz, A. F.	Maiden
*Kluttz, DeWitt	Washington
Knight, Floyd L.	Sanford
*Knight, Wm. P. (Hon.)	Greensboro
Knowles, D. L.	Rocky Mount
Knox, A. W. (Hon.)	Raleigh
*Knox, J. C.	Goldsboro
Koonce, S. Everett, OALR (Hon.)	Wilmington
*Kornegay, Lemuel W.	Rocky Mount
Kremer, C. E., Jr.	Charlotte
*Kutscher, G. W., Jr.	Swannanoa
*Lackey, M. A.	High Point
*Lackey, W. J.	Fallston
Lacy, Thos. A.	Raleigh
*Lafferty, Robt. H.	Charlotte
*Lambert, C. F.	Spruce Pine
Lambert, W. L.	Asheboro
Lamm, I. W. (Hon.)	Raleigh

* Present at 1932 Meeting at Winston-Salem.

Name	*Address*
Lane, Bessie	Raleigh
Lane, John L., OALR	Rocky Mount
Lane, P. P.	Wilson
Large, H. Lee	Rocky Mount
Larkin, E. W.	Washington
Lassiter, H. G.	Weldon
*Lassiter, V. C.	Winston-Salem
Latham, Jos. R.	New Bern
*Laton, Jas. F., OALR	Albemarle
Lattimore, E. B.	Shelby
*Lawrence, B. J.	Raleigh
Lea, J. I.	Tryon
*Leak, W. G.	East Bend
Le Bauer, M. L.	Greensboro
*Le Bauer, S. F.	Greensboro
Ledbetter, Jas. McQ., OALR,	Rockingham
*Lee, J. Marshall	Newton Grove
Lee, Lawrence V.	Lattimore
Lee, Mike	Kinston
Lee, Thomas L.	Kinston
Leinbach, Robt. F.	Charlotte
Lentz, C. M.	Albemarle
*Leonard, J. C., Jr.	Lexington
*Lewis, C. W.	Beaufort
Lewis, Geo. W. (Hon.)	Wilson
Lewis, H. W. (Hon.)	Jackson
Lewis, J. S.	Hickory
Lilly, Jas. M., OALR	Fayetteville
*Linville, A. Y. (Hon.),	Winston-Salem
Linville, W. C.	Goldsboro
Lister, E. W.	Elizabeth City
Lister, J. L.	Mount Olive
*Little, E. E.	Statesville
*Little, Lonnie M.	Statesville
Livingston, E. A., OALR	Gibson
Lloyd, B. B.	Carrboro
*Lockett, Everett A.	Winston-Salem
*London, Arthur Hill	Durham
Long, Benj. Leroy	Glen Alpine
*Long, E. F.	High Point
Long, Fred Y.	Catawba
Long, Glenn	Newton
Long, H. F. (Hon.)	Statesville
Long, R. H.	Morganton
*Long, T. W. M.	Roanoke Rapids
*Long, B. McK.	Winston-Salem
Long, Z. F.	Rockingham
Looney, J. J. W.	Rocky Mount
Lord, Marjery J.	Montreat
Lott, Wm. G.	Asheville
Love, Bedford E.	Roxboro
Love, Wm. M.	Monroe
Lovelace, Thos. C.	Henrietta
*Lovill, Robt. J.	Mount Airy
*Lowery, John R.	Salisbury
*Lubchenko, N. E.	Harrisburg
Lutterloh, I. Hayden, Jr.	Sanford
Lutterloh, I. H., Sr.	Sanford
*Lyday, C. E.	Gastonia
*Lyday, R. O.	Greensboro
Lyle, S. H. (Hon.)	Franklin
Lyon, B. R.	Greensboro
Lyon, Henry Wise	Windsor
*MacConnell, John W., OALR,	Davidson
*MacFadyen, Paul R.	Concord
MacFadyen, Paul R., Jr.	Concord
*MacNider, Wm. deB.	Chapel Hill
MacRae, J. D., Jr.	Asheville
*McAdams, C. R.	Belmont
*McAnally, Wm. J. (Hon.),	High Point
McBane, T. W.	Pittsboro
*McBrayer, L. B. (Hon.)	Southern Pines
*McBryde, Angus M.	Durham
*McBryde, M. H.	Reidsville
*McCain, P. P.	Sanatorium
McCain, Walkup K.	High Point
*McCain, Wm. R. (Hon.)	High Point
*McCall, A. C., OALR	Asheville
*McCampbell, John (Hon.),	Morganton
McCants, C. H.	Winston-Salem
*McChesney, W. W.	Gastonia
McClees, E. C.	Elm City
McClelland, Joseph O.	Maxton
McConnell, H. R.	Gastonia
*McCoy, Thos. M.	Charlotte
McCotter, St. Elmo	Bayboro
McCracken, C. M.	Fairview
*McCracken, J. R., OALR,	Waynesville
McCuiston, A. M.	Kinston
*McCutcheon, W. B.	Durham
McDade, B. B.	Burlington
McDaniel, L. E.	Jackson

* Present at 1932 Meeting at Winston-Salem.

Name	*Address*
McDowell, F. C.	Zebulon
*McDowell, R. H.	Belmont
McDuffie, W. N.	Hemp
*McElwee, Ross S.	Statesville
McFadden, R. H.	Charlotte
*McFayden, O. L.	Fayetteville
*McGeachy, R. S. (Hon.)	Greenville
McGee, Jas. W. (Hon.)	Raleigh
McGee, J. M.	Greensboro
*McGehee, Jno. Wm.	Reidsville
McGregor, Geo. D.	Charlotte
McGoogan, Benj. J.	Morven
McGowen, Claudius	Plymouth
*McIntosh, D. M.	Old Fort
McIntyre, Stephen	Lumberton
*McIver, Lynn	Sanford
*McKay, Hamilton W.	Charlotte
*McKay, Jos. F. (Hon.)	Buies Creek
McKay, Robert W.	Charlotte
McKay, W. P.	Fayetteville
McKee, John S.	Raleigh
McKenzie, B. W.	Salisbury
*McKnight, R. B.	Charlotte
McLaughlin, C. S.	Charlotte
McLaughlin, J. E. (Hon.)	Statesville
McLean, Allen	Morganton
McLean, John W.	Godwin
McLelland, W. D.	Mooresville
McLemore, Geo. A.	Smithfield
*McLeod, A. H.	Aberdeen
*McLeod, Vida C.	Southern Pines
*McLeod, W. G.	Southern Pines
McLeskey, J. H.	Charlotte
McManus, W. L.	Greensboro
McMillan, B. F. (Hon.)	Red Springs
McMillan, J. M.	Candor
McMillan, R. D.	Red Springs
McMillan, W. D. (Hon.),	Wilmington
McNairy, Caroline	Lenoir
*McNeill, Jas. H.	North Wilkesboro
McPhail, L. D.	Charlotte
*McPherson, C. W., OALR,	Burlington
McPherson, R. G.	Saxapahaw
*McPherson, S. D., OALR	Durham
Mackie, Geo. C.	Wake Forest
*Mackie, N. W.	Yadkinville
Macon, G. H.	Warrenton
Madison, W. H.	Sylva
Mahoney, A. F.	Monroe
Mallett, E. P.	Hendersonville
*Malloy, S. A.	Yanceyville
*Maness, A. K.	Greensboro
Mangum, C. P.	Kinston
Mangum, C. S.	Chapel Hill
*Mann, I. Thurman	High Point
*Manning, I. H. (Hon.)	Chapel Hill
Manning, John M. (Hon.)	Durham
Mariner, N. B.	Belhaven
*Markham, Blackwell	Durham
Marr, M. W.	Pinehurst
Marsh, Frank B.	Salisbury
*Martin, J. A.	Lumberton
Martin, J. F.	Dunn
Martin, J. H.	Red Oaks
Martin, J. W.	Roanoke Rapids
*Martin, Lester P.	Mocksville
*Martin, Moir S.	Mt. Airy
Martin, Sydnor L.	Leaksville
*Martin, W. C., OALR	Mocksville
*Martin, William F.	Charlotte
Martin, W. J.	Richmond, Va. (Mecklenburg)
Mason, C. N.	Harlowe
Mason, Manly	Newport
Massey, C. C.	Smithfield
Matheson, J. Gaddy	Ahoskie
*Matheson, James P.	Charlotte
Matthews, Vann M.	Charlotte
Mattheson, R. A.	Raeford
Matthews, B. B.	Shelby
Matthews, James O. (Hon.)	Clinton, R. F. D.
*Matthews, M. L.	Sanford
Matthews, Wm. W.	Spray
Maxwell, C. S.	Beaufort
Meadows, W. J.	Greensboro
Mears, George A.	Asheville
Mebane, W. C.	Wilmington
Melvin, W. C.	Linden
*Menzies, H. C. (Hon.)	Hickory
Merritt, John H.	Woodsdale, R. 1.
Miles, May S.	Greensboro
Milham, C. G.	Southern Pines
Miller, J. F.	Marion
Miller, O. L.	Charlotte
*Miller, R. C.	Gastonia

* Present at 1932 Meeting at Winston-Salem.

Name	*Address*
Miller, Robert B.	Goldsboro
Milliken, J. S.	Southern Pines
Misenheimer, E. A.	Concord
*Misenheimer, Thos. M.	Charlotte
Mitchel, G. T.	Jennings
Mitchell, Geo. W.	Wilson
Mitchell, Paul H.	Ahoskie
*Mitchell, R. C.	Mt. Airy
Mitchell, T. B.	Shelby
*Mitchell, Z. P.	Weldon
Mitchener, J. S., OALR	Raleigh
*Mock, Frank L.	Lexington, R. 3
Moncure, Wm., Jr.	Salisbury
*Monk, Henry L.	Salisbury
*Monroe, C. R.	Pinehurst
Monroe, J. P.	Sanford
*Montgomery, Harry M.	Burlington
Montgomery, Kenneth E.	Asheville
Moore, Alexander W.	Charlotte
Moore, Chas. E. (Hon.)	Wilson
*Moore, B. D.	Mount Holly
*Moore, D. B.	Badin
*Moore, D. F.	Shelby
*Moore, Henry B.	Graham
Moore, J. E.	Mount Olive
Moore, Jos. N.	Marshall
Moore, Julian A.	Asheville
*Moore, Oren	Charlotte
*Moore, R. A.	Charlotte
*Moore, R. A.	Winston-Salem
*Moore, T. V.	Acme
*Moore, W. Houston	Wilmington
Morgan, A. E.	Huntersville
Morgan, B. E.	Asheville
Morgan, G. A.	Asheville
*Morris, Jos. A. (Hon.)	Oxford
Morris, Ray	Concord
Morrow, Wm. C.	Andrews
Morton, J. X.	Faison
Moseley, Chas. W. (Hon.)	Greensboro
*Moseley, Z. V.	Kinston
Moss, G. O.	Cliffside
Motley, Fred Elliott	Charlotte
Mudgett, W. C.	Southern Pines
*Munroe, H. Stokes	Charlotte
*Munroe, J. P. (Hon.)	Charlotte
*Munt, H. F.	Winston-Salem
*Murchison, D. R.	Wilmington
*Murphy, Gibbons W.	Asheville
*Murphy, John G., OALR	Wilmington
*Murphy, W. B.	Snow Hill
*Murray, R. L.	Raeford
*Myers, Alonzo	Charlotte
Myers, D. L.	Jennings
*Myers, John Q.	Charlotte
*Nalle, B. C.	Charlotte
*Nance, C. L.	Charlotte
*Nash, J. Fred	St. Paul
Neal, Kemp P.	Raleigh
Neal, Paul N.	Raleigh
Neblett, H. C.	Charlotte
Neese, Kenneth E.	Asheville
Nelson, R. J. (Hon.)	Robersonville
Nesbitt, Charles T.	Wilmington
Neville, C. H.	Scotland Neck
Newby, G. E.	Hertford
Newcombe, A. P., Jr.	Henderson
*Newell, H. A., OALR	Henderson
Newell, J. O.	Franklinton
Newman, Harold H.	Salisbury
*Newton, Howard L.	Charlotte
Nichols, Alvin A.	Sylva
Nichols, Asbury S.	Sylva
Nichols, Austin F.	Roxboro
Nichols, R. E., Jr.	Durham
Nichols, Rhodes E. (Hon.)	Durham, Rt. 8
*Nicholson, B. M.	Enfield
Nicholson, C. R.	Statesville
Nicholson, N. G.	Mt. Gilead
Nicholson, P. A. (Hon.)	Washington
Nisbet, D. Heath	Charlotte
*Nisbet, Walter O. (Hon.)	Charlotte
Noble, R. J. (Hon.)	Selma
*Noble, R. P.	Raleigh
*Nobles, Jos. E. (Hon.)	Greenville
*Noblin, Roy L.	Oxford
Noell, R. H.	Rocky Mount
*Nolan, J. O.	Kannapolis
Norburn, C. S.	Asheville
*Norburn, R. L.	Asheville
Norfleet, A. C.	Tarboro
Norfleet, E. P.	Roxobel
*Norman, J. S., OALR	Hickory
*Norment, W. B.	Greensboro

* Present at 1932 Meeting at Winston-Salem.

Name	*Address*
Norris, Henry	Waverly Mills, S. C. (Rutherford Co.)
*Northington, J. M.	Charlotte
*Nowell, S. C.	Hickory
Nowlin, Preston	Charlotte
Oates, George	Grover
O'Briant, A. L.	Sanford
*Odell, J. W.	Dunn
*Ogburn, H. H.	Greensboro
Ogilvie, Hanson S.	Asheville
Olive, P. W.	Fayetteville
Oliver, Robt. D.	Pine Level
*Ormand, J. W.	Monroe
*Orr, Chas. C.	Asheville
Orr, P. B.	Asheville
Osburne, Jos. H.	Atlanta, Ga. (Cleveland Co.)
Owen, J. F.	Dix Hill, Raleigh
*Ownbey, Arthur D.	Greensboro
*Pace, K. B.	Greenville
*Paddison, J. R.	Kernersville
Page, B. W.	Trenton
Palmer, M. C.	Tryon
Parker, G. E. (Hon.)	Benson
*Parker, Geo. F.	Asheville
*Parker, H. R.	Greensboro
*Parker, J. W.	Seaboard
Parker, O. L.	Clinton
Parker, Paul G.	Erwin
Parker, S. F.	Shelby
*Parks, Hugh	Elkin
Parks, W. B.	Gastonia
Parrott, Albert DeK.	Kinston
*Parrott, Jas. M. (Hon.) OALR	Raleigh
Parrott, M. C.	Kinston
Parrott, Wm. T. (Hon.)	Kinston
Parsons, W. H.	Ellerbe
Pate, J. F.	Canton
*Pate, F. J., OALR	Greensboro
Pate, Jas. G.	Gibson
*Patman, W. L.	Greensboro
Patrick, Geo. R., Jr.	Bessemer City
*Patterson, Fred M.	Greensboro
Patterson, Jos. F.	New Bern
*Patterson, Reid	Charlotte
*Peeler, Clarence N., OALR	Charlotte
Peeler, John H.	Salisbury
*Peery, Vance P.	Kinston
Peek, W. A.	Ramseytown
Peete, C. H.	Warrenton
Pendleton, Wilson	Asheville
*Pepper, Jno. Kerr	Winston-Salem
*Perkins, Jno. R., OALR	Winston-Salem
Perry, A. H.	Wood
*Perry, D. R.	Durham
Perry, E. M.	Rocky Mount
*Perry, H. B.	Boone
Perry, H. G.	Louisburg
*Perry, Robt. E.	Greensboro
Person, Edgar C., OALR	Pikeville
*Person, J. B., Jr. (Hon.)	Selma
Persons, Elbert Lapsley	Durham
Peters, W. A.	Elizabeth City
Peterson, C. A.	Spruce Pine
*Petrie, Robt. Wm., OALR	Lenoir
Petteway, Geo. H.	Charlotte
*Pfohl, Samuel F. (Hon.)	Winston-Salem
Phifer, Edward W.	Morganton
*Phillips, C. C.	Charlotte
*Phillips, C. H.	Thomasville
Pickett, John A.	Burlington R. F. D. 1
Pittman, E. E.	Oak City
Pittman, M. A.	Wilson
*Pittman, R. L.	Fayetteville
Poate, E. M.	Southern Pines
Pollard, W. B.	Winton
Pollock, Raymond	New Bern
*Pool, B. B.	Winston-Salem
Pope, Henry T. (Hon.)	Lumberton
Post, J. J.	Greensboro
Poston, J. Lewis	Statesville
Powell, Albert H.	Durham
Powell, Jesse A.	Edenton
Powers, Frank P.	Wilmington
Pressly, Geo. W. (Hon.)	Charlotte
Pressly, J. L.	Statesville
Pressly, J. M.	Belmont
Price, K. A.	Hickory
Pritchard, G. L.	Black Mountain
*Procter, I. M.	Raleigh
Pulliam, B. E.	Elkin
Pugh, Chas. H.	Gastonia

* Present at 1932 Meeting at Winston-Salem.

Name	*Address*
Purdy, J. J.	Oriental
Putney, R. H.	Elm City
Quickel, Thos. C., OALR	Gastonia
Quinn, Robert F.	Magnolia
*Rainey, W. T.	Fayetteville
Ramseur, W. L.	Kings Mountain
Ramsey, James G.	Cleveland, O. (Rowan Co.)
Raby, J. G.	Tarboro
*Rand, C. H.	Fremont
Rand, E. G.	Raleigh
Rankin, P. R.	Mount Gilead
Rankin, R. B.	Concord
*Rankin, S. W.	Winston-Salem
*Rankin, Watson S. (Hon.)	Charlotte
*Ranson, J. Lester	Charlotte
*Ravenel, S. F.	Greensboro
Ray, F. L.	Charlotte
*Ray, John B.	Leaksville
Ray, O. L.	Raleigh, Rt. 1
Ray, R. C.	West Jefferson
*Ray, S. P.	Leaksville
*Reaves, C. R., OALR	Greensboro
Reaves, W. P., OALR	Greensboro
Redding, Alex H. (Hon.)	Cedar Falls
*Redfern, T. C.	Winston-Salem
Reed, D. H.	Maxton
Reeves, A. F.	Asheville
Reeves, B. E.	W. Jefferson
*Reeves, J. L.	Canton
*Reeves, Robert J.	Durham
Reeves, R. J.	Leicester
Register, F. M.	Goldsboro
Reid, Geo. P. (Hon.)	Forest City
Reid, Jas. W.	Lowell
Reid, Thomas N.	Matthews
Reitzel, C. E. (Hon.)	High Point
*Reynolds, C. V. (Hon.)	Asheville
Rhodes, Jas. S.	Williamston
*Rhudy, Booker E.	Greensboro
*Rhyne, Robt. E.	Gastonia
*Rhyne, S. A.	Statesville
Rich, J. C.	Candler
*Richardson, W. P.	Winston-Salem
Ricks, Leonard E. (Hon.)	Fairmont
Riddle, J. B.	Morganton
Riggsbee, A. E.	Durham
*Ringer, Paul H.	Asheville
*Roberson, Foy	Durham
Roberts, Bryan N.	Hillsboro
Roberts, B. W.	Durham
*Roberts, W. M.	Gastonia
*Robertson, E. M.	Durham
*Robertson, James F.	Wilmington
*Robertson, J. N.	Fayetteville
Robertson, L. H.	Salisbury
*Robinson, D. E.	Burlington
Robinson, E. E.	Concord
Robinson, J. D.	Wallace
*Robinson, Robt. S.	Greensboro
Robinson, W. A.	Old Fort
Robinson, W. F.	Mars Hill
Rodgers, W. D., Jr.	Warrenton
Rodman, J. C. (Hon.)	Washington
Rodman, R. B.	Wilmington
Rodwell, Jno. W. (Hon.)	Mocksville
Rogers, Jas. Rufus	Raleigh
Rogers, W. A. (Hon.)	Franklin
*Root, Aldert S.	Raleigh
Rose, A. H.	Smithfield
Rose, David J.	Goldsboro
Rose, James	Pikeville
*Ross, Geo. H.	East Durham
*Ross, Otho B.	Charlotte
*Ross, Robert A.	Durham
Ross, Thos. W.	Charlotte
Rosser, R. G.	Vass
Rourk, M. H.	Wilmington
*Rousseau, J. P.	Winston-Salem
*Royal, Ben F.	Morehead City
*Royal, D. M.	Salemburg
Royall, M. A.	Elkin
*Royster, Hubert A. (Hon.)	Raleigh
Royster, Thomas H.	Roanoke Rapids
Royster, S. S.	Shelby
*Royster, Thos. S.	Henderson
Rucker, A. A.	Rutherfordton
*Rudisill, J. D.	Lenoir
Ruffin, J. M.	Durham
*Russell, C. R.	Granite Falls
Russell, Jesse M.	Canton
Russell, W. M.	Asheville
*Sabiston, Frank, OALR	Kinston
Sadler, R. C.	Whiteville
Saliba, M. M., OALR	Wilson
Salley, E. McQueen	Saluda

* Present at 1932 Meeting at Winston-Salem.

Name	*Address*
*Salmons, H. C.	Elkin
*Salmons, L. R.	Winston-Salem
Sample, R. C.	Hendersonville
Sams, W. A.	Marshall
*Sasser, T. J.	Charlotte
Saunders, Joseph H.	Williamston
Saunders, John Rudolph	Morganton
Saunders, S. A.	Aulander
Saunders, S. Stewart	High Point
Sawyer, Chas. J. (Hon.) OALR	Windsor
*Sawyer, W. W.	Elizabeth City
Schaffle, Karl	Asheville
*Schallert, P. O.	Winston-Salem
Schenk, Sam M.	Shelby
*Schoenheit, E. W.	Asheville
Schonwald, J. T. (Hon.)	Wilmington
*Schoonover, R. A.	Greensboro
Schuler, J. E.	East Durham
Scott, Charles L.	Sanford
Scott, S. F.	Union Ridge
*Scruggs, W. Marvin	Charlotte
*Seay, T. W.	East Spencer
Sessoms, E. T.	Roseboro
*Sevier, D. E. (Hon.)	Asheville
Sevier, J. T. (Hon.)	Asheville
*Sewell, Marion H.	Jackson
Sexton, C. Hector	Dunn
*Shafer, Irving E.	Salisbury
Shamburger, J. B. (Hon.)	Star
*Shands, Alfred Rives, Jr.	Durham
*Sharp, O. L.	Greensboro
*Sharpe, C. R.	Lexington
*Sharpe, F. A.	Greensboro
Sharpe, Frank L.	Statesville
Shaver, W. T.	Albemarle
*Shaw, J. A.	Fayetteville
*Shaw, L. R.	Statesville
Shaw, W. G.	Wagram
*Shelburne, P. A.	Greensboro
*Sherrell, C. L.	Statesville
Shields, Henry B. (Hon.)	Carthage
Shirley, H. C., OALR	Charlotte
*Shohan, Jos.	Greensboro
*Shore, Clarence A.	Raleigh
*Shuford, Jacob H.	Hickory
*Shull, J. Rush	Charlotte
*Sidbury, J. B.	Wilmington
*Sigman, F. G.	Spencer
Sikes, G. L. (Hon.)	Salemburg
*Simmons, L. L., OALR	Greensboro
*Simmons, R. R.	Winston-Salem
Simpson, H. H.	Altamahaw
Singletary, G. C.	Clarkton
*Sink, C. S.	N. Wilkesboro
*Sisk, C. N.	Rockingham
*Skinner, Louis C.	Greenville
*Slate, John S.	Winston-Salem
*Slate, J. W.	High Point
Slate, Wesley C.	Spencer
Slaughter, F. G.	Oxford
*Sloan, A. B.	Mooresville
*Sloan, D. B., OALR	Wilmington
Sloan, H. L., Oph.	Charlotte
Sloan, Wm. H.	Garland
Slocum, R. B.	Wilmington
Sloop, Eustace H.	Crossnore
Small, Victor R.	Clinton
Smith, A. Jones	Black Creek
Smith, Alick T.	Greensboro
Smith, Annie T.	Durham
Smith, B. R.	Asheville
Smith, C. T.	Rocky Mount
Smith, D. L.	Saluda
*Smith, D. T.	Durham
*Smith, F. C., OALR	Charlotte
Smith, F. G.	Southport
*Smith, F. L.	Burlington
Smith, G. M.	Monroe
Smith, Harold Benj.	N. Wilkesboro
*Smith, J. A.	Lexington
*Smith, James T.	Westfield
Smith, John McNeill	Rowland
Smith, O. F.	Scotland Neck
Smith, R. A. (Hon.)	Goldsboro
Smith, R. C.	Grifton
*Smith, R. E.	Mt. Airy
*Smith, Sidney	Raleigh
Smith, Slade A.	Wilmington
Smith, W. F.	Chadbourn
Smith, W. G.	Wendell
Smith, William Gordon	Thomasville
*Smith, Wm. H.	Goldsboro
Smoot, J. E. (Hon.)	Concord
*Soady, J. H.	Asheboro
Somers, L. P.	New Castle

* Present at 1932 Meeting at Winston-Salem.

Name	*Address*
Sossoman, J. C.	Midland
*Sowers, Roy G.	Jonesboro
*Sowers, Jacob L.	Lexington
*Spainhour, Ellis H. (Hon.)	Winston-Salem
*Sparrow, Thos DeL.	Charlotte
*Speas, D. C.	Winston-Salem
*Speas, W. P., OALR.	Winston-Salem
*Speed, J. A.	Durham
Speight, J. A.	Rocky Mount
Spencer, Frederick B.	Salisbury
*Spencer, Wm. O. (Hon.)	Winston-Salem
*Spicer, Richard W.	Winston-Salem
Spikes, N. O.	Durham
Spoon, A. O.	Greensboro
*Spoon, S. C.	Burlington
Sprinkle, C. N.	Weaverville
*Spruill, Jos. L.	Jamestown
*Sprunt, W. H., Jr.	Winston-Salem
*Squires, Claude B.	Charlotte
Staley, S. Walter	Rocky Mount
Stamps, Thos. (Hon.)	Lumber Bridge
Stanford, Lois Foote	Durham
Stanford, W. R.	Durham
Stanley, John H.	Four Oaks
*Stanton, D. A. (Hon.)	High Point
Starr, H. F.	Greensboro
Staton, L. R.	Hendersonville
*Stevens, M. L. (Hon.)	Asheville
*Stewart, H. D. (Hon.)	Monroe
Stimpson, R. T.	Raleigh
Stokes, Jas. E. (Hon.)	Salisbury
Stone, G. E.	King
Stone, M. L.	Rocky Mount
Straughan, J. W.	Warsaw
*Street, C. A.	Winston-Salem
*Street, M. E. (Hon.)	Glendon
*Stretcher, R. H.	Waynesville
*Strickland, E. F. (Hon.)	Winston-Salem
Strickland, E. L.	Wilson
Stringfield, Samuel L.	Waynesville
Stringfield, Thos. (Hon.)	Waynesville
*Strong, Chas. M. (Hon.)	Charlotte
*Strong, Wm. M.	Charlotte
*Strosnider, Chas. F.	Goldsboro
Strowd, W. A.	Durham
Suggett, O. L.	Asheville
*Suiter, W. G.	Weldon
Summerell, E. M. (Hon.)	China Grove
*Sumner, E. A.	High Point
*Sumner, G. H.	Asheboro
Sumner, Thos. W.	Fletcher
Sutton, Carl W.	Richlands
*Sutton, Wm. G.	Seven Springs
Swann, C. C.	Asheville
Swann, Jos. F.	Gastonia
*Sweaney, H. M.	Durham
Swindell, Lewis H.	Washington
Sykes, R. P.	Asheboro
Sykes, J. V.	Rocky Mount
*Symington, John	Carthage
Talley, J. A.	Troutman
*Tankersley, J. W.	Greensboro
*Tate, C. S.	Ramseur
Tate, W. C.	Banner Elk
*Tatum, Roy C.	Statesville
Tayloe, D. T.(Hon.)	Washington
Tayloe, D. T., Jr.	Washington
*Tayloe, John Cotton	Washington
*Tayloe, Joshua, Jr.	Washington
Taylor, B. C.	Mount Holly
Taylor, E. H. E.	Morganton
*Taylor, F. R.	High Point
*Taylor, G. W.	Mooresville
Taylor, H. C.	Charlotte (Chadwick Station)
*Taylor, J. E.	Morganton
Taylor, James N.	Greensboro
*Taylor, James T.	Greensboro
*Taylor, R. W.	Oxford
Taylor, S. R., OALR	Greensboro
Taylor, Wesley	Greensboro
Taylor, Wm. L. (Hon.)	Oxford
Taylor, W. I.	Burgaw
Teague, S. E.	Hamlet
Temple, Wade	Marietta
*Templeton, James McP.	Cary
*Templeton, J. Y.	Mooresville
*Tennent, G. S. (Hon.) OALR,	Asheville
Terry, Geo. H. B.	Oteen

* Present at 1932 Meeting at Winston-Salem.

Name	*Address*
*Terry, J. R.	Lexington
Terry, Wm. Calvin	Hamlet
Thaxton, B. A.	Roxboro
*Thomas, C. D.	Sanatorium
*Thomas, J. G.	Greensboro
*Thomas, W. N.	Oxford
Thompson, A. C.	Asheville
*Thompson, A. F., OALR	Troy
*Thompson, C. D.	High Point
*Thompson, Edg. S.	Winston-Salem
Thompson, H. C.	Shelby
Thompson, Hugh A.	Raleigh
Thompson, J. M.	Mebane
*Thompson, Joseph W.	Creedmoor
*Thompson, S. R.	Charlotte
Thompson, S. W., Jr.	Morehead City
*Thornton, W. F.	Sanatorium
Thorp, A. T.	Rocky Mount
Thurston, Asa	Taylorsville
Tidwell, J. E.	Andrews
*Tillotson, S. F.	Pilot Mountain
Timberlake, C. V.	Youngsville
*Todd, L. C.	Charlotte
Townsend, M. L.	Washington, D. C. (Mecklenburg Co.)
Toy, Calvert R.	Milltown, N. J. (Durham-Orange)
Triplett, W. R.	Purlear
*Trivette, W. A.	Hamptonville
Troxler, R. M.	Burlington
Tucker, E. V.	Goldsboro
*Tucker, Jno. H.	Charlotte
Turlington, W. I.	Jacksonville
Turner, H. G.	Raleigh
Turner, J. P.	Greensboro
Tuttle, A. F.	Spray
*Tuttle, Reuben G.	Winston-Salem
*Twitty, John C.	Rutherfordton
Tydeman, F. W. L.	St. Louis, Mo. (Mecklenburg Co.)
Tyler, E. R.	Durham
Tyndall, R. G.	Kinston
*Tyner, Carl V.	Leaksville
Tyson, J. J.	Ayden
Tyson, T. D.	Mebane
*Underwood, O. E.	Roseboro
Utley, H. H.	Benson
*Valk, A. deT.	Winston-Salem
Vann, H. M.	Wake Forest
Van Epp, Owen B.	Cashiers
*Van Poole, C. M. (Hon.)	Salisbury
Vaughn, J. C.	Rich Square
*Verdery, W. C.	Fayetteville
Verner, Carl Hugh	Forest City
*Vernon, Jas. W.	Morganton
*Vestal, T. F.	Winston-Salem
*Vestal, Willis J. (Hon.)	Lexington
Vick, George D.	Selma
*Waddell, Robt. L.	Mooresville
Wadsworth, H. B.	New Bern
Wagner, Geo. A.	Asheville
Wakefield, Harry A., OALR	Charlotte
*Walker, H. D. (Hon.)	Elizabeth City
Walker, J. B.	Burlington
Walker, L. K.	Ahoskie
Walker, T. T.	Chapel Hill
*Wall, R. L.	Winston-Salem
*Walters, Chas. M.	Burlington
*Wannamaker, Edw. J., Jr.	Charlotte
*Ware, Ford	Mooresville
Ward, I. A.	Elizabeth City
Ward, John LaB.	Asheville
Ward, W. T.	Raleigh
*Warren, R. F.	Prospect Hill
Warrick, L. A.	Goldsboro
Watkins, F. B.	Morganton
Watkins, G. T.	Durham
*Watkins, John A.	Asheville
*Watkins, W. M.	Durham
Watson, John B.	Raleigh
Watson, Leon	Broadway
Watson, Paul S.	Madison
*Watson, Thos. M.	Greenville
*Weathers, Bahnson	Rosemary
*Weathers, R. R.	Knightdale
Weaver, Henry B. (Hon.)	Asheville
Weaver, W. J.	Rt. 4, Asheville
Webb, B. G.	Andrews
Weddington, J. L.	Henderson
Weizenblatt, Sprinza	Asheville
Wessell, John C. (Hon.),	Wilmington
West, B. C.	Kinston
West, C. F.	Kinston

* Present at 1932 Meeting at Winston-Salem.

Name	*Address*
West, Louis N., OALR	Raleigh
Westcott, W. E.	Candler
Wharton, Chas. R.	Ruffin
Wheeler, J. H.	Henderson
Whelpley, Frank L.	Goldsboro
Whichard, M. P.	Edenton
*Whicker, Guy L.	Kannapolis
Whisnant, Albert M. (Hon.)	Charlotte
*Whitaker, Paul F.	Kinston
Whitaker, R. B.	Whiteville
*White, R. A.	Asheville
White, Thos. P.	Charlotte
White, W. H. C.	Elizabeth City
Whitehead, Edward	Salisbury
*Whitehead, S. L.	Asheville
*Whitfield, Wm. Cobb (Hon.)	Salisbury
*Whittington, Claude	Greensboro
*Whittington, Jas. B.	Winston-Salem
Whittington, W. W. (Hon.)	Snow Hill
Wiggins, J. C.	Winston-Salem
Wilkerson, Charles B.	Raleigh
*Wilkerson, Charles E.	Greensboro
Wilkerson, J. B.	Rosman
*Wilkes, Marcus B.	Laurel Hill
Wilkes, Grover C.	Sylva
*Wilkins, J. C.	Haw River
Wilkins, S. A.	Dallas
Wilkins, J. W., OALR	Mt. Olive
*Wilkins, R. B., OALR	Raleigh
Wilkinson, C. T.	Wake Forest
*Wilkinson, R. W.	Wake Forest
Willcox, J. W.	Schenectady, N. Y. (Scotland Co.)
*Williams, Claude B.	Elizabeth City
Williams, James Marcus	Warsaw
*Williams, J. H.	Sanatorium
*Williams, John D. (Hon.)	Guilford Station
Williams, L. L.	Asheville
Williams, Lester L.	Fayetteville
Williams, L. P.	Edenton
Williams, Wm. N.	Tabor
Willis, A. P.	Candler
*Willis, B. C.	Rocky Mount
Willis, W. M.	Farmville
Wilson, Albert R. (Hon.)	Greensboro
Wilson, Clarence L.	Lenoir
Wilson, N. G.	Madison
Wilson, Robert B.	Clinton
*Wilson, S. Glenn	Clinton
Wilson, W. G.	Smithfield
Wingate, G. C.	Charlotte
Winkler, Harry	Charlotte
Winstead, E. G.	Belhaven
*Winstead, J. A.	Rocky Mount
*Winstead, J. L.	Greenville
Winston, A. R.	Franklinton
*Winston, P. H.	Raleigh
Wiseman, P. H.	Avondale
*Wishart, Wm. E.	Charlotte
Withers, J. J.	Davidson
Wolfe, H. C., OALR	Greensboro
*Wolff, D. R.	Greensboro
*Woltz, John L.	Mt. Airy
Wood, Frank	Marion
Wood, J. W. (Hon.)	Boiling Springs
Woodard, A. G., OALR	Goldsboro
*Woodard, C. A.	Wilson
Woodard, E. D.	New Bern
Woodard, G. B.	Wilson
Woodcock, John H.	Hendersonville
*Woodruff, Fred G.	High Point
Woodruff, Julian S.	Charlotte
*Woodson, Charles W.	Salisbury
Woodward, J. G.	Asheville
Wooten, Amos Monroe	Pinetops
Wooten, W. I.	Greenville
Wooten, Floyd P.	Kinston
*Wright, J. B. (Hon.) OALR	Raleigh
*Wright, R. H., Jr.	Greenville
Wyatt, A. T.	Lillington
*Wyatt, Wortham	Winston-Salem
*Wylie, W. deK.	Winston-Salem
Yarborough, Frank R.	Cary
*Yarborough, R. F. (Hon.)	Louisburg
*Yoder, Paul A.	Winston-Salem
*Yokeley, Raymon V.	Thomasville
*York, Alexander Arthur	High Point
*Young, C. R.	Angier
Young, G. McD.	Postell
Young, J. C.	Asheville
*Yow, I. A.	Concord
*Ziegler, M. V.	Raleigh
*Zimmerman, Robert U.	Lexington

* Present at 1932 meeting at Winston-Salem.

ROSTER OF FELLOWS FOR 1932

BY COUNTIES

NOTE.—Every physician in the state whose name we could secure has had an opportunity to supply correct information as to his name, postoffice, academic and medical education, date of State license and date State Society was joined. A few did not take advantage of the opportunity. Anyone finding an error should report it to the secretary of the society.

ALAMANCE-CASWELL COUNTIES SOCIETY

Name and Address	Licensed	Joined State Society
President: R. E. Brooks, Burlington; Jeff. Med. Coll., 1920.....	1920	1922
Secretary: D. E. Robinson, Burlington; Harvard Med. Coll., 1927	1929	1930
Anderson, Chas. A., Burlington (Hon.); Coll. P. and S., Balt., 1901	1893	1896
Bell, F. O., Burlington; Atlanta Med. Coll., 1918.....	1921	1928
Braddy, Wade Hampton, Burlington; Univ. of N. C., 1909.....	1909	1913
Carlyle, J. B., Burlington; Jeff. Med. Coll., 1926.....	1926	1928
Carrington, G. L., Burlington; Johns Hopkins, 1920.....	1920	1925
Ellington, A. J., Burlington; Columbia Univ., 1915.....	1915	1917
Fitch, W. E., Burlington; 1891.....	1891	1927
Franklin, Ernest W., Jr., Burlington; Univ. of Pa., 1930.....	1930	1932
Goley, Willard Coe, Graham; Univ. of Pa., 1924.....	1924	1924
Goley, Wm. R., Graham (Hon.); P. and S., Balt., 1885.....	1885	1893
Gwyn, H. L., Yanceyville; Med. Coll. Va., 1923.....	1923	1925
Harden, Graham, Burlington; Univ. of Pa., 1919.....	1920	1922
McDade, B. B., Burlington; Univ. of Md., 1918.....	1918	1920
McPherson, C. W., Burlington; Univ. of Md., 1910.....	1910	1912
McPherson, R. G., Saxapahaw; Univ. of N. C., 1908.....	1908	1909
Malloy, S. A., Yanceyville; Ky. School Med., 1897.....	1898	1903
Montgomery, Harry M., Burlington; N. C. Med. Coll., 1903....	1903	1904
Moore, Henry Blanchard, Graham; Jeff. Med. Coll., 1920.....	1920	1923
Pickett, J. A., Burlington, R.F.D. 1; Univ. of Tenn. Coll. of Med., 1894	1894	1904
Scott, S. F., Union Ridge; Univ. of Pa., 1918.....	1918	1920
Simpson, H. H., Altamahaw; Univ. of Md., 1925.....	1925	1926
Smith, F. L., Burlington; Univ. of Pittsburgh, 1927.....	1927	1928
Spoon, S. C., Burlington; Univ. of Md., 1918.....	1918	1920
Thompson, J. M., Mebane; Univ. of N. C., 1909.....	1909	1920
Troxler, R. M., Burlington; Univ. of Md., 1914.....	1914	1915
Tyson, T. D., Mebane; Univ. Coll. of Med., Richmond, 1899....	1899	1904
Walker, J. B., Burlington; Med. Coll. Va., 1914.....	1914	1916
Walters, C. M., Burlington; Univ. of Md. and P. and S., Balt., 1908	1908	1909
Warren, R. F., Prospect Hill; Atlanta School of Med., 1911....	1911	1919
Wilkins, J. C., Haw River; Univ. of Md., 1911.....	1911	1920

ANSON COUNTY

Name and Address	Licensed	Joined State Society
President:	....	....
Secretary:	....	....
Allen, Chas. I., Wadesboro; Columbia Univ. Coll. P. and S., 1913	1913	1922
Bennett, Jos. H., Wadesboro; Univ. of Med., 1894	1894	1904
Covington, Platt W., 1479 Harrison Ave., Salt Lake City, Utah; Univ. of Md., 1908	1908	1914
McGoogan, Benj. J., Morven; Univ. of Md., 1912	1912	1923

ASHE COUNTY SOCIETY

President and Secretary: Thos. J. Jones, Lansing; Lincoln Mem.	....	....
Jones, T. Lester, Lansing; Va. Med. Coll., 1909	1909	1917
Ray, R. C., West Jefferson; Med. Coll. of Va., 1916	1916	1917
Reeves, B. E., West Jefferson; P. and S., Balt., 1891	1891	1924

AVERY COUNTY SOCIETY

President: W. B. Burleson, Plumtree; Univ. Md., 1915	1915	1916
Secretary: R. H. Hardin, Banner Elk; N. C. Med. Coll., 1914	1914	1919
Sloop, Eustace H., Crossnore; N. C. Med. Coll., 1905; Jeff. Med. Coll., 1908	1905	1909
Tate, W. C., Banner Elk; Tenn. Med. Coll., 1908	1909	1912

BEAUFORT COUNTY SOCIETY

President: E. G. Winstead, Belhaven; Med. Coll. Va., 1929	1929	1930
Secretary: Joshua Tayloe, Jr., Washington; Univ. of Pa., 1923	1923	1926
Bonner, J. B., Aurora; Univ. of Md. School of Med. and Coll. P. and S., 1918	1918	1920
Britt, T. C., Washington; Jeff. Med. Coll., 1921	1921	1925
Carter, H. W., Washington; Univ. of Va., 1895	1895	1910
Jackson, C. C., Pinetown; P. and S., Balt., 1893	1893	1896
Kluttz, DeWitt, Washington; Univ. of Pa., 1918	1919	1921
Larkin, E. W., Washington; N. C. Med. Coll., 1917	1920	1922
Mariner, N. B., Belhaven; Univ. Coll. of Med. Va., 1903	1903	1903
Nicholson, P. A., Washington (Hon.); P. and S., Balt., 1889	1889	1890
Rodman, J. C., Washington (Hon.); Bellevue Med. Coll., 1892	1892	1895
Swindell, Lewis H., Washington; Univ. of Pa., 1916	1916	1919
Tayloe, D. T., Washington (Hon.); Bellevue Med. Coll., 1885	1885	1885
Tayloe, D. T., Jr., Washington; Univ. of Pa., 1919	1919	1922
Tayloe, John Cotton, Washington; Univ. of Pa., 1922	1924	1925

BERTIE COUNTY SOCIETY

President: Frank H. Garris, Lewiston; Jeff. Med. Coll., 1912	1912	1918
Secretary: S. A. Saunders, Aulander; Jeff. Med. Coll., 1914	1914	1918
Castelloe, Cola, Windsor; Univ. of Pa., 1917	1917	1926
Evans, L. B., Windsor; Univ. Coll. of Med., 1900	1900	1907
Lyon, Henry Wise, Windsor; Univ. of Pa. Sch. of Med., 1918	1919	1920

Name and Address	Licensed	Joined State Society
Norfleet, E. P., Roxobel; Va. Med. Coll., 1914	1914	1920
Sawyer, Charles Judson, Windsor (Hon.); P. and S., Balt., 1895	1895	1897

BLADEN COUNTY SOCIETY

President:	....	....
Secretary: E. S. Clark, Clarkton; Med. Coll. of Va., 1914	1914	1915
Bennett, E. C., Elizabethtown; Med. Coll. of Va., 1926	1926	1927
Bridger, D. H., Bladenboro; Jeff. Med. Coll.	1922	1925
Bullard, G. F., Elizabethtown; N. C. Med. Coll., 1915	1915	1916
Clark, D. D., Clarkton; Med. Coll. of Va., 1917	1917	1920
Cromartie, R. S., Elizabethtown; N. C. Med. Coll., 1900	1900	1915
Hutchinson, S. S., Bladenboro; N. C. Med. Coll., 1911	1911	1917
Singletary, G. C., Clarkton; Univ. of Pa. School of Med., 1917	1917	1918

BRUNSWICK COUNTY SOCIETY

President:	....	....
Secretary:	....	....
Goley, Wm. R., Shallotte; Univ. Coll. of Med., Richmond, 1901	1901	1904
Smith, F. G., Southport; Univ. of Ga., 1922	1927	1931

BUNCOMBE COUNTY SOCIETY

President: Wm. L. Grantham, Asheville; N. C. Med. Coll., 1906	1906	1911
Secretary: M. S. Broun, Asheville; Columbia University Coll. of P. S., 1919	1922	1923
Adams, J. L., Asheville; Jeff. Med. Coll., 1910	1910	1913
Alexander, Geo., Asheville; Univ. of Louisville Med. Dept., 1913	1920	1921
Ambler, Chase P., Asheville (Hon.); West. Reserve Univ. School of Med., 1889	1890	1891
Archer, Isaac J., Black Mountain; Northwestern Univ. Med. School, 1896	1905	1907
Baier, Geo. F., Jr., W. Asheville; Hahnemann Med. Coll., 1906	1920	1930
Baker, W. E., Arden; Chattanooga Med. Coll., 1908	1915	1916
Battle, Geo. C., Asheville; Univ. of Md., 1912	1912	1912
Beall, L. G., Black Mountain; N. C. Med. Coll., 1906; Univ. of Pa., 1911	1906	1912
Beers, David L., Asheville; Univ. of Mich., 1925	1928	1929
Blumberg, Alfred, Oteen; Sch. Med. Univ. Colo., 1923	1928	1929
Brewton, W. A., Enka; Univ. of Pa., 1927	1927	1929
Brookshire, Harley G., Asheville; N. C. Med. Coll., 1905	1905	1907
Brown, Kermit E., Asheville; Jeff. Med. 1927	1927	1930
Brownsberger, John F., Asheville; Coll. of Med., Evan. Los Angeles, 1925	1928	1929
Buck, David M., Asheville; Med. Coll. of Va., 1925	1925	1927
Buckner, J. M., Swannanoa; Univ. N. C., 1909	1909	1912
Carr, Eugene M., Asheville; Johns Hopkins Univ., 1919	1926	1927
Cheesborough, Thomas P., Biltmore (Hon.); Univ. of N. Y., 1891	1891	1900
Clark, Harold S., Asheville; Univ. of Pa., 1922	1922	1924
Cocke, C. H., Asheville; Cornell Univ., 1905	1912	1913

Name and Address	Licensed	Joined State Society
Cocke, E. R., Asheville; Jeff. Med. Coll., 1913	1914	1917
Cocke, Jere E., Asheville; Louisville Med. Coll., 1905	1905	1907
Colby, C. DeW., Asheville; Univ. of Mich., 1892; Army Med. School, 1895	1909	1912
Cotten, Clyde E., Asheville (Hon.); Univ. of Wooster, 1889	1901	1901
Craddock, Alva B., Ashevile; Johns Hopkins, 1918	1923	1924
Croom, G. H., Asheville, Box 1233; N. C. Med. Coll., 1909	1909	1916
Crow, S. L., Asheville; Emory Univ., 1925	1926	1927
Eckel, O. F., Asheville; Med. Coll. of S. C., 1906	1907	1909
Edwards, B. O., Asheville; N. C. Medical Coll., 1905	1905	1909
Elias, Lewis W., Asheville; Columbia Univ. Coll. of P. and S., 1903	1906	1907
Floyd, H. T., Oteen; Johns Hopkins Univ., 1923	1926	1927
Fox, Robert Eugene, Asheville; Univ. of Pa.	1926	1929
Freeman, Wm. T., Biltmore; Univ. of Ga., 1917	1927	1929
George, John C., Oteen; Miami Med., 1906	1925	1927
Godwin, G. C., Oteen; Med. Coll. Va., 1915	1915	1920
Greene, Jos. B., Asheville; Univ. of Va., 1893	1910	1911
Griffin, M. A., Asheville; Jeff. Med. Coll., 1917	1917	1918
Griffin, W. R., Asheville; Jeff. Med. Coll., 1910	1910	1917
Griffith, F. W., Asheville; Johns Hopkins, 1906	1911	1912
Griffith, L. M., Asheville; Johns Hopkins, 1915	1916	1917
Harrison, H. H., Asheville; Jeff. Med. Coll., 1905	1905	1918
Hensley, Chas. A., Asheville; Jeff. Med. Coll., 1917	1917	1927
Herbert, Wm. P., Asheville; Univ. of Va., 1907	1910	1911
Hipps, A. G. T., Asheville; Jeff. Med. Coll., 1916	1916	1920
Hollyday, W. M., Asheville; Univ. of Maryland, 1908	1914	1915
Huffines, T. R., Asheville; Indiana Univ. Med. School, 1919	1922	1923
Huston, Jno. Walter, Asheville; Rush Med. Coll., 1904	1912	1913
Ingersoll, Louise M., Asheville; Woman's Med. Coll., 1914	1925	1927
Ivey, R. R., U. S. P. H. S., Biltmore; Univ. of Ala., 1909	1921	1921
Jones, Catesby, Asheville; Univ. of Md., 1893	1931	1932
Jordan, Charles S., Asheville (Hon.); Univ. of N. Y., 1890	1891	1899
Justice, Wm. S., Asheville; Harvard Univ., 1926	1930	1931
King, Edward, Asheville; Harvard, 1917	1921	1922
Kutscher, G. W., Jr., Swannanoa; Univ. of Pittsburgh, 1923	1925	1926
Lord, Marjery J., Montreat; Univ. of Mich., 1916	1918	1918
Lott, Wm. G., Asheville; Univ. of Colo., 1929	1930	1931
MacRae, J. D., Jr., Asheville; Univ. of Pa. Med. School, 1927	1927	1930
McCall, A. C., Asheville; Univ. of Md., 1910	1910	1912
McCracken, C. M., Fairview; N. C. Med. Coll., 1896	1896	1904
Mears, George A., Asheville; Med. Coll. Syracuse Univ., 1924	1924	1927
Montgomery, Kenneth E., Asheville; Univ. Louisville, 1917	1920	1920
Moore, Julian A., Asheville; Univ. of Pa., 1918	1918	1921
Morgan, B. E., Asheville; Univ. of Tenn., 1917	1921	1921
Morgan, G. A., Asheville; Univ. of Tenn., 1917	1920	1925
Murphy, Gibbons W., Asheville; Emory Univ., 1923	1923	1927
Norburn, Chas S., Asheville; Univ. of Va., 1917	1921	1924

Name and Address	Licensed	Joined State Society
Norburn, R. L., Asheville; Vanderbilt Univ., 1925	1925	1927
Ogilvie, Hanson S., Asheville; Med. Coll. Va., 1909	1926	1927
Orr, Chas. C., Asheville; Univ. of Md., 1904	1904	1905
Orr, P. B., Asheville; Jeff. Med. Coll., 1901	1901	1904
Parker, Geo. F., Asheville; Univ. of Pa., 1923	1924	1926
Pendleton, Wilson, Asheville; Univ. of Va., 1908	1919	1920
Pritchard, G. L., Black Mountain; Univ. Coll. of Med., Richmond, 1913	1913	1926
Reeves, A. F., Asheville; Geo. Washington Univ., 1906	1909	1910
Reeves, R. J., Leicester; Vanderbilt Univ., 1913	1913	1922
Reynolds, C. V., Asheville (Hon.); Univ. of N. Y., 1895	1895	1896
Rich, J. C., Candler; Univ. of Nashville, 1908	1908	1931
Ringer, Paul H., Asheville; Columbia Univ. P. and S., N. Y., 1904	1906	1907
Russell, W. M., Asheville; Univ. of Cincinnati, 1928	1931	1932
Schaffle, Karl, Asheville; Univ. of Pa., 1907	1926	1927
Schoenheit, E. W., Asheville; Jeff. Med. Coll., 1920	1920	1921
Sevier, D. E., Asheville (Hon.); Jeff. Med. Coll., 1895	1895	1899
Sevier, J. T., Asheville (Hon.); Jeff. Med. Coll., 1895	1895	1899
Smith, B. R., Asheville; Jeff. Med. Coll., 1911	1913	1914
Sprinkle, C. N., Weaverville; Jeff. Med. Coll., 1910	1910	1922
Stevens, M. L., Asheville (Hon.); Balt. Med. Coll., 1891	1892	1893
Suggett, O. L., Asheville; Barnes Med. Coll., 1893	1928	1929
Swann, C. C., Asheville; Tulane Univ., 1926	1930	1931
Tennett, G. S., Asheville (Hon.); N. C. Med. Coll., 1894	1894	1898
Terry, George H. B., Oteen; Jeff. Med. Coll., 1895	1925	1927
Thompson, A. C., Asheville; Georgetown Univ., 1911	1921	1922
Wagner, Geo. A., Asheville; Bellevue Hosp. Med. Coll., 1920	1931	1932
Ward, John LaB., Asheville; Med. Coll. of S. C., 1905	1921	1922
Watkins, John A., Asheville; Tulane University, 1910	1925	1926
Weaver, H. B., Asheville (Hon.); Washington Univ., 1872	1881	1882
Weaver, W. J., Asheville; Jeff. Med. Coll., 1898	1897	1915
Weizenblatt, Sprinza, Asheville; Vienniese Univ. of Med., 1922	1929	1931
Westcott, W. E., Candler; Coll. Med. Evangelists, 1926	1930	1932
White, R. A., Asheville; Univ. Cin. Coll. of Med., 1918	1920	1921
Whitehead, S. L., Asheville; Jefferson Med. Coll., 1921	1921	1929
Williams, L. L., Asheville; Med. Coll. of S. C., 1880	1924	1927
Willis, A. P., Candler; Univ. of N. C., 1904	1904	1919
Woodward, J. G., Asheville; Univ. of Pa., 1925	1925	1927
Young, J. C., Asheville; Univ. of Tenn., 1926	1926	1929

BURKE COUNTY SOCIETY

President: G. M. Billings, Morganton; Tulane Univ. of La., 1919	1919	1920
Secretary: J. E. Taylor, Morganton; Med. Coll. Va., 1922	1929	1930
Achard, Lucien, Morganton; R. Univ. of Naples (Italy)	1896	1929
Helms, J. B., Morganton; Univ. of Pa., 1928	1928	1931
Kende, Tibor Norbert, Jersey City, N. J., Royal Hungarian Univ., 1922	1927	1928

Name and Address	Licensed	Joined State Society
Kibler, W. H., Morganton; Univ. of Pa., 1914	1914	1918
Kirksey, Jas. J., Morganton; Univ. of Pa., 1921	1921	1923
Long, Benj. L., Glen Alpine; N. C. Med. Coll., 1913	1913	1914
Long, R. H., Morganton; Jeff. Med. Coll., 1916	1916	1923
McCampbell, John, Morganton (Hon.); Balt. Med. Coll., 1894	1895	1899
McLean, Allan, Morganton; Univ. of Md., 1908	1908	1911
Phifer, Edward W., Morganton; N. C. Med. Coll., 1902	1902	1904
Riddle, J. B., Morganton; Vanderbilt Univ., 1898	1904	1904
Saunders, John Rudolph, Morganton; Emory Univ., 1926	1926	1931
Taylor, E. H. E., Morganton; Tulane Univ. La., 1924	1924	1925
Vernon, Jas. W., Morganton; Jeff. Med. Coll., 1909	1909	1913
Watkins, F. B., Morganton; Jeff. Med. Coll., 1907	1907	1910

CABARRUS COUNTY SOCIETY

President: J. R. Howard, Concord; Med. Coll. of Va., 1924	1924	1925
Secretary: D. G. Caldwell, Concord; Univ. of Pa., 1923	1925	1925
Bowman, C. R., Kannapolis; Med. Coll. Va., 1928	1929	1930
Bunn, J. J., Mt. Pleasant; N. C. Med. Coll., 1912	1913	1915
Burns, J. E., Concord; Med. Coll. of Va., 1923	1923	1927
Gouger, Geo. J., Concord (Hon.); Univ. of Md., 1891	1891	1899
Ketner, Fred Y., Concord	....	1930
King, Richard M., Concord; Jeff. Med. Coll., 1903	1903	1907
Lubchenko, N. E., Harrisburg; N. C. Med. Coll., 1915	1915	1916
MacFayden, Paul R., Concord; Univ. Coll. of Med., Richmond, 1901	1901	1904
MacFayden, Paul R., Jr., Concord; Univ. of Va., 1929	1929	1932
Misenheimer, E. A., Concord; Univ. of Md., 1926	1927	1928
Morris, Ray, Concord	....	1932
Nolan, J. O., Kannapolis; Jeff. Med. Coll., 1921	1921	1922
Rankin, R. B., Concord; Tulane Univ. of La., 1917	1920	1922
Robinson, E. E., Concord; Med. Coll. of Va., 1927	1927	1929
Smoot, J. E., Concord (Hon.); Balt. Med. Coll., 1893	1894	1902
Sossoman, J. C., Midland; N. C. Med. Coll., 1915	1917	1918
Whicker, Guy L., Kannapolis; Univ. of Md., 1926	1926	1928
Yow, I. A., Concord; N. C. Med. Coll., 1906	1906	1910

CALDWELL COUNTY SOCIETY

President: Robt. Wm. Petrie, Lenoir; Univ. of Md., 1903	1903	1903
Secretary: Verne H. Blackwelder, Lenoir	....	1931
Goodman, A. B., Lenoir; N. C. Med. Coll., 1898	1897	1910
Hamer, Douglas, Jr., Lenoir; Med. Coll. of S. C.	1927	1929
Hedrick, Clyde R., Lenoir; Georgetown Med. Sch., 1925	1925	1926
Hickman, M. T., Hudson; Univ. of Va., 1909	1909	1910
Houck, Albert, Lenoir (Hon.); P. and S., Balt., 1884	1891	1893
Kent, Alfred A., Winter Pk., Fla. (Hon.); Jeff. Med. Coll., 1885	1885	1894
McNairy, Caroline, Lenoir; Woman's Med. Coll., Pa., 1917	1917	1919
Rudisill, J. D., Lenoir; Univ. of Md., 1922	1922	1923

Name and Address	Licensed	Joined State Society
Russell, C. R., Granite Falls; Univ. Coll. of Med., Richmond, 1909	1909	1918
Wilson, Clarence L., Lenoir; U. S. Grant Univ., 1903	1903	1905

CARTERET COUNTY SOCIETY

President: W. S. Chadwick, Beaufort; Grad. Univ. of Va., 1928	1928	1930
Secretary: Otis H. Johnson, Morehead City; Atlanta Med., 1905	1926	1926
Bonner, K. P. B., Morehead City; Med. Coll. of Va., 1905	1905	1905
Davis, George, Beaufort; Kentucky School of Med., 1894	1896	1904
Ferebee, C. G., Morehead City; Med. Coll. of Va., 1902	1904	1904
Hyde, Francis Edward, Beaufort; West. Res. Univ., 1920	1925	1926
Lewis, C. W., Welch, West Va.; Med. Coll. of Va., 1930	1930	1931
Mason, C. N., Newport; Coll. P. and S., Balt., 1882	1899	1930
Mason, Manly, Newport; Tulane University, 1924	1924	1925
Maxwell, C. S., Beaufort; Univ. of the South, Sewanee, 1900	1899	1904
Royal, Ben F., Morehead City; Jeff. Med. Coll., 1909	1909	1909
Thompson, S. W., Jr., Morehead City; Med. Coll. Va., 1913	1915	1922

CASWELL COUNTY SOCIETY—(See Alamance-Caswell)

CATAWBA COUNTY SOCIETY

President:	....	....
Secretary:	....	....
Craft, C. C., Hickory; Geo. Wash. Univ., 1909	1909	1930
Fresh, W. M., Hickory	....	1927
Frye, Glenn R., Hickory; Jeff. Med. Coll., 1921	1921	1923
Griffin, H. W., Hickory; Emory Univ., 1923	1931	1932
Hambrick, Robt. T., Hickory; Univ. of Tulane, 1923	1923	1924
Hunsucker, Chas. R., Hickory; N. C. Med. Coll., 1913	1913	1915
Keever, James W., Hickory; Med. Coll. of Va., 1927	1927	1930
Kluttz, A. F., Maiden; Jeff. Med. Coll., 1917	1917	1920
Lewis, J. S., Hickory; Med. Coll. of S. C., 1925	1927	1932
Long, Fred Y., Catawba; Balt. and N. C. Med. Coll.	1898	1898
Long, Glenn, Newton; N. C. Med. Coll., 1912	1912	1915
Menzies, H. C., Hickory (Hon.); N. C. Med. Coll., 1894	1894	1899
Norman, J. S., Hickory; P. and S., Balt., 1909	1911	1920
Nowell, S. C., Hickory; Univ. of Pa., 1921	1922	1924
Price, K. A., Hickory; Univ. of Va., 1907	1907	1909
Shuford, Jacob H., Hickory; Univ. of Mich., 1901	1902	1902

CHATHAM COUNTY SOCIETY

President:	....	....
Secretary:	....	....
Chapin, Wm. Burdette, Pittsboro; Univ. of N. C., 1909	1909	1910
Edwards, J. D., Siler City (Hon.); Louisville Med. Coll., 1887	....	1894
McBane, T. W., Pittsboro	....	....

CHEROKEE COUNTY SOCIETY

Name and Address	Licensed	Joined State Society
President: B. G. Webb, Andrews; Louisville Med. Coll., 1885...	1885	1885
Secretary: Edw. E. Adams, Murphy; Jeff. Med. Coll., 1923.....	1923	1924
Adams, N. B., Murphy; Tenn. Med. Coll., 1896.....	1909	1909
Herbert, Fred L., Andrews; Tenn. Med. Coll., 1904.....	1912	1912
Hill, J. N., Murphy; Univ. of Louisville, 1909.....	1909	1909
Morrow, Wm. C., Andrews; Atlanta Sch. of Med., 1909.....	1909	1909
Tidwell, J. E., Andrews; Chattanooga Med. Coll., 1903.....	1909	1915
Young, G. McD., Postell; Lincoln Mem. Univ., 1916.....	1917	1918

CHOWAN-PERQUIMANS COUNTIES SOCIETY

President: C. A. Davenport, Hertford; Univ. of Med., 1924....	1924	1926
Secretary: T. P. Brinn, Hertford; Univ. of Pa., 1923.....	1923	1927
Cox, Thomas A., Hertford; Univ. of Md., 1892.....	1907	1918
Newby, G. E., Hertford; Jeff. Med. Coll., 1900.....	1901	1916
Powell, Jesse A., Edenton; Coll. of P. and S., Balt., 1907.....	1908	1909
Whichard, M. P., Edenton; Univ. of Md., 1910.....	1910	1918
Williams, L. P., Edenton; Bellevue Med. Coll., 1918.....	1919	1921

CLEVELAND COUNTY SOCIETY

President: D. F. Moore, Shelby; Jeff. Med. Coll., 1925.....	1925	1927
Secretary: Sam M. Schenk, Shelby; Univ. of Pa., 1923.....	1923	1926
Aydlette, Jos. P., Earl; Kentucky University, 1901.....	1903	1903
Bridges, D. T., Lattimore; Emory Univ., 1926.....	1926	1927
Ellis, R. C., Shelby (Hon.); Balt. Univ. Med. School, 1886.....	1889*	1891
Gold, Ben, Shelby; P. and S., Balt., 1920.....	1920	1922
Gold, T. B., Shelby; N. C. Med. Coll., 1911.....	1911	1915
Harbison, J. W., Shelby; Johns Hopkins, 1919.....	1919	1924
Houser, E. A., Shelby; Chattanooga Med. Coll., 1898; Balt. Univ., 1902	1902	1904
Kendall, B. H., Shelby; Univ. of Md., 1929.....	1929	1931
Lackey, W. J., Fallston; Va. Med. College, 1928.....	1928	1929
Lattimore, E. B., Shelby; Bellevue Med. Coll., 1897.....	1896	1904
Lee, Lawrence V., Lattimore; Emory Univ. School of Med. 1894	1897	1904
Matthews, B. B., Shelby; Med. Coll. of S. C.....	1927	1929
Mitchell, T. B., Shelby; Univ. of Pa., 1924.....	1925	1927
Oates, George, Grover; Univ. of Louisville, 1894.....	1902	1904
Osborne, Jos. H., Atlanta; Med. Coll. of Va., 1930.....	1930	1930
Parker, S. F., Shelby; Med. Coll. of Va., 1929.....	1929	1931
Ramseur, W. L., Kings Mountain; Med. Coll. of S. C., 1926....	1927	1929
Royster, S. S., Shelby; Tenn. Med. Coll., 1891.....	1896	1904
Thompson, H. C., Shelby; Tulane Univ., 1930.....	1931	1932
Wood, J. W., Boiling Springs (Hon.); Louisville Med. Coll., 1892	1901*	1900

COLUMBUS COUNTY SOCIETY

President: R. B. Whitaker, Whiteville; Univ. Coll. of Med., Richmond, 1912	1912	1913

* Registered.

Name and Address	Licensed	Joined State Society
Secretary: Floyd Johnson, Whiteville; Memphis Hosp. Med. Coll., 1903	1903	1904
Cox, G. S., Tabor; N. C. Med. Coll., 1911	1911	1914
Floyd, L. D., Fair Bluff; N. C. Med. Coll., 1911	1911	1912
Moore, T. V., Acme; Balt. Med. Coll., 1901	1901	1911
Sadler, R. C., Whiteville; N. C. Med. Coll., 1912	1912	1915
Smith, W. F., Chadbourn; N. C. Med. Coll., 1904	1904	1905
Williams, William N., Tabor; Med. Coll. of Va., 1924	1924	1925

CRAVEN COUNTY SOCIETY

President: D. E. Ford, New Bern; Univ. of Mich., 1908	1925	1924
Secretary: Joseph R. Latham, New Bern; Jeff. Med. Coll., 1917	1917	1923
Ashford, Chas. Hall, New Bern; Johns Hopkins, 1927	....	1931
Barker, Christopher S., New Bern; Jeff. Med. Coll., 1909	1909	1924
Bender, E. L., New Bern; Med. Coll. of Va., 1916	1916	1925
Daniels, R. L., New Bern; Med. Coll. of Va., 1912	1912	1919
Duffy, R. N., New Bern; Johns Hopkins, 1906	1907	1908
Duguid, Jos. W., Dover; N. C. Med. Coll., 1905	1905	1912
Gibbs, N. M., New Bern; Univ. of Md. and Coll. P. and S., Balt., 1896	1895	1897
Jones, R. Duval, New Bern; Univ. of Md., 1896	1897	1897
Patterson, Joseph F., New Bern; Jeff. Med. Coll., 1906	1906	1906
Pollock, Raymond, New Bern; Jefferson Med. Coll., 1897	1900	1900
Wadsworth, H. B., New Bern; Johns Hopkins, 1918	1918	1923
Woodard, E. D., New Bern; Loyola Univ.	1920	1921

CUMBERLAND COUNTY SOCIETY

President: J. F. Highsmith, Jr., Fayetteville; Univ. of Pa., 1927	1927	1929
Secretary: O. L. McFadyen, Fayetteville; N. C. Med. Coll., 1912	1912	1912
Allgood, R. A., Fayetteville; Univ. of Md. and Coll. of P. and S., Balt., 1912	1915	1917
Ashcraft, J. E., Fayetteville (Hon.); Univ. of N. Y., 1887	1887	1890
Averitt, K. G., Cedar Creek (Hon.); Balt. Med. Coll., 1893	1893	1902
Bullock, Thomas C., Autryville (Hon.); P. and S., Balt., 1885	1885	1905
Burnett, B. S., Ft. Bragg	....	1931
Highsmith, J. D., Fayetteville; Jeff. Med. Coll., 1918	1918	1920
Highsmith, J. F., Fayetteville (Hon.); Jeff. Med. Coll., 1889	1889	1893
Highsmith, Seavy, Fayetteville; Univ. Coll. of Med., Richmond, 1901	1901	1902
Highsmith, W. C., Fayetteville; Univ. of Cincinnati, 1931	1930	1932
Jordan, Wm. S., Fayetteville; Univ. of N. C., 1906	1906	1907
Lilly, James M., Fayetteville; Univ. Coll. of Med., Richmond, 1903	1903	1904
McKay, W. P., Fayetteville; Tulane Univ., 1916	1916	1921
Olive, P. W., Fayetteville; P. and S., Balt., 1907	1907	1909
Pittman, R. L., Fayetteville; Jeff. Med. Coll., 1910	1910	1912
Rainey, W. T., Fayetteville; Univ. Coll. of Med., Richmond, 1913	1913	1916

Name and Address	Licensed	Joined State Society
Robertson, J. N., Fayetteville; Med. Coll. of Va., 1923	1923	1924
Shaw, J. A., Fayetteville, Univ. Pa., 1923	1923	1926
Verdery, W. C., Fayetteville; Univ. of Ga., 1915	1920	1921
Williams, Lester L., Fayetteville; Md. Med. Coll., 1913	1913	1916

CURRITUCK COUNTY SOCIETY

President:	....	....
Secretary:	....	....
Griggs, W. T., Poplar Branch (Hon.); Univ. of Va., 1896	1896	1901

DAVIDSON COUNTY SOCIETY

President: W. Bryce Hunt, Lexington; Univ. of Md., 1923	1923	1924
Secretary: Grover C. Gambrell, Lexington; Univ. of Ga., 1912	1923	1924
Cathell, E. J., Lexington; Emory Univ., 1930	1930	1932
Clyatt, Claude Eugene, Denton; Univ. of Ga., 1911	1923	1924
Farrington, R. K., Thomasville; Univ. Cinn., 1925	1925	1927
Jennings, R. G., Thomasville; N. C. Med. Coll., 1913	1913	1920
Leonard, J. C., Jr., Lexington; Jeff., 1928	1928	1931
Mock, Frank Lowe, Lexington, Rt. 3; N. C. Med. Coll., 1908	1908	1911
Phillips, C. H., Thomasville; Balt. Univ. School of Med., 1892	1893	1911
Sharpe, C. R., Lexington; Jeff. Med. Coll., 1914	1914	1917
Smith, J. A., Lexington; N. C. Med. Coll., 1915	1915	1917
Smith, William Gordon, Thomasville; Tulane Univ., 1927	1927	1928
Sowers, Jacob L., Lexington; Univ. of Md., 1921	1921	1924
Terry, J. R., Lexington; Univ. of Louisville, 1911	1912	1912
Vestal, Willis J., Lexington (Hon.); P. and S., Balt., 1883	1889*	1893
Yokeley, R. V., Thomasville; N. C. Med. Coll., 1911	1911	1912
Zimmerman, Robert U., Lexington, Rt. 4; N. C. Med. Coll., 1901	1901	1904

DAVIE COUNTY SOCIETY

President: W. C. Martin, Mocksville; P. and S., Balt., 1888	1888	1904
Secretary: A. B. Byerly, Cooleemee; Univ. College of Med., Richmond, 1896	1896	1904
Drewry, W. H., Cooleemee; Coll. of Va., 1926	1926	1926
Harding, S. A., Mocksville; N. C. Med. Coll., 1910	1910	1913
Martin, Lester P., Mocksville; Jeff. Med. Coll., 1920	1920	1921
Rodwell, Jno. W., Mocksville (Hon.); P. and S., Balt., 1895	1895	1896

DUPLIN COUNTY SOCIETY

President:	....	....
Secretary: J. W. Straughan, Warsaw; Med. Coll. of Va., 1924	1924	1925
Carr, Ransom Lee, Rose Hill; Balt. Med. Coll., 1907	1908	1909
Farrior, J. W., Warsaw; Univ. of Pa., 1912	1913	1917
Morton, J. X., Faison; N. C. Med. Coll., 1915	1915	1922
Quinn, Robert F., Magnolia; N. C. Med. Coll., 1912	1913	1916
Robinson, J. D., Wallace; Univ. of Md., 1915	1915	1917
Williams, Jas. M., Warsaw; Univ. of Md., 1902	1902	1902

* Registered.

DURHAM-ORANGE COUNTIES SOCIETY

Name and Address	Licensed	Joined State Society
President: Lyle S. Booker, Durham; Va. Univ. Med. Coll., 1908	1910	1911
Secretary: Francis N. Bowles, Durham; Med. Coll. of Va., 1924	1924	1926
Adams, C. A., Durham (Hon.); P. and S., Balt., 1892	1892	1901
Adkins, M. T., Durham; Johns Hopkins, 1907	1915	1916
Alyea, Edwin P., Durham; Johns Hopkins Med. Sch., 1923	1930	1930
Amoss, Harold L., Durham; Harvard Med. Sch., 1911	1929	1930
Anderson, W. B., Durham; Johns Hopkins, 1924	1927	1927
Bass, H. H., Durham (Hon.); Univ. Coll. of Med., 1899	1899	1900
Baynes, R. H., Durham; Univ. of Md., 1914	1914	1920
Bitting, Numa D., Durham; Jeff. Med. Coll., 1907	1907	1909
Boddie, Needham P., Durham (Hon.); P. and S., Balt., 1883	1883	1883
Boone, W. H., Durham; N. C. Med. Coll., 1902	1902	1910
Boone, W. W., Durham; Jeff. Med. Coll., 1923	1923	1925
Brinkley, H. M., Durham; Jeff. Med. Coll., 1919	1919	1923
Brooks, B. U., Durham; Univ. of Md., 1905	1905	1907
Bullitt, J. B., Chapel Hill; Univ. of Va., 1897	1914	1915
Campbell, A. S., Durham; Chicago Coll. Med. and Surg., 1917	1923	1924
Carter, Bayard, Durham; Johns Hopkins, 1925	1925	1931
Coppridge, W. M., Durham; Jeff. Med. Coll., 1918	1919	1920
Davison, Wilburt C., Durham; Johns Hopkins, 1917	1927	1927
Eagle, Watt W., Durham; Johns Hopkins, 1925	1929	1930
Fassett, Burton W., Durham; Balt. Med. Coll., 1898	1899	1909
Felts, Robert L., Durham; Univ. of Md., 1898	1899	1909
Fields, Leonard E., Chapel Hill; Univ. of Pa., 1929	1929	1931
Gorham, H. J., Durham; Univ. of Md., 1926	1926	1927
Goudge, Mabel E., West Durham; Ohio State Univ., 1922	1925	1927
Hamblen, E. C., Durham; Univ. of Va., 1928	1931	1931
Hansen-Prüss, O. C. E., Durham; Johns Hopkins, 1924	1930	1931
Hardee, W. P., Durham; Jeff. Med. Coll., 1912	1912	1924
Hart, Deryl, Durham; Johns Hopkins, 1921	1929	1930
Hayes, R. B., Hillsboro; Univ. of Md., 1906	1910	1917
Haywood, C. L., Jr., Durham; Harvard, 1927	1929	1930
Hicks, Calvin S., Durham; Univ. of Md., 1904	1904	1904
Holloway, Joseph C., Durham; Tulane Univ., 1927	1927	1929
Holloway, Robert Lee, W. Durham (Hon.); Med. Coll. of Va., 1893	1893	1901
Johnson, N. M., Durham (Hon.); Wash. Univ. Sch. of Med., 1877	1889	1879
Johnston, Christopher, Durham; Johns Hopkins, 1926	1930	1930
Kerns, T. C., Durham; Univ. of Pa., 1911	1911	1912
Lloyd, B. B., Carrboro; Univ. of N. C., 1909	1909	1914
London, A. H., Durham; Univ. of Pa., 1927	1927	1930
MacNider, Wm. deB., Chapel Hill; Univ. of N. C., 1903	1903	1903
McBryde, Angus M., Durham; Univ. of Pa., 1928	1931	1932
McCutcheon, W. B., Durham; Med. Coll. of Va., 1921	1921	1924
McPherson, S. D., Durham; Univ. of Md., 1903	1903	1912
Mangum, C. S., Chapel Hill; Jeff. Med. Coll., 1894	1896	1898

Name and Address	Licensed	Joined State Society
Manning, I. H., Chapel Hill (Hon.); Long Island Coll., Hosp., N. Y., 1897	1899	1901
Manning, Jno. M., Durham (Hon.); Bellevue Med. Coll., 1882	1884	1884
Markham, Blackwell, Durham; Harvard Med. Coll., 1922	1922	1925
Nichols, R. E., Jr., Durham; Univ. of Pa., 1930	1930	1932
Nichols, Rhodes E., Durham (Hon.), Rt. 8; Va. Med. Coll., Richmond, 1890	1890	1904
Perry, D. R., Durham; Jeff. Med. Coll., 1919	1919	1922
Persons, Elbert Lapsley, Durham; Harvard Med. Sch., 1927	1931	1931
Powell, Albert H., Durham; Univ. of Ga., 1924	1925	1925
Reeves, Robert J., Durham; Baylor Univ., 1924	1930	1930
Riggsbee, A. E., Durham; Univ. of N. C., 1909	1909	1911
Roberson, Foy, Durham; Jeff. Med. Coll., 1909	1909	1912
Roberts, Bryan N., Hillsboro; Univ. of Md., 1925	1925	1926
Roberts, B. W., Durham; Univ. of Md., 1924	1924	1927
Robertson, E. M., Durham; Tulane Univ., 1912	1912	1913
Ross, George H., Durham; Univ. Tenn., 1899	1899	1904
Ross, Robert A., Durham; Univ. of Pa., 1922	1922	1925
Ruffin, J. M., Durham; Univ. Va., 1926	1930	1931
Schuler, J. E., East Durham; Med. Coll. of Va., 1914	1920	1922
Shands, Alfred Rives, Jr., Durham; Univ. of Va., 1922	1929	1930
Smith, Annie T., Durham; Univ. of Ill., 1923	1925	1926
Smith, D. T., Durham; Johns Hopkins, 1922	....	1931
Speed, J. A., Durham; Jeff. Med. Coll., 1914	1914	1916
Spikes, N. O., Durham; Jeff. Med. Coll., 1924	1924	1927
Stanford, Lois Foote, Durham; Univ. of Pa., 1921	1923	1924
Stanford, W. R., Durham; Univ. of Pa., 1919	1919	1923
Strowd, W. A., Durham; Univ. of N. C., 1909	1909	1926
Sweaney, H. M., Durham; Univ. of Pa., 1919	1919	1920
Toy, Calvert R., Milltown, N. J.; Univ. of Pa., 1923	1923	1926
Tyler, E. R., Durham; Jeff. Med. Coll., 1923	1923	1927
Walker, T. T., Chapel Hill; Harvard Med. Sch., 1929	1931	1932
Watkins, G. T., Durham; Jeff. Med. Coll., 1915	1915	1917
Watkins, W. M., Durham; Jeff. Med. Coll., 1923	1923	1925

EDGECOMBE-NASH COUNTIES SOCIETY

President: Lemuel W. Kornegay, Rocky Mount; N. C. Med. Coll., 1906	1906	1914
Secretary: N. P. Battle, Rocky Mount; Univ. of Pa., 1926	1930	1931
Bailey, C. W., Rocky Mount	....	1930
Baker, Julian Meredith, Tarboro (Hon.); Univ. of Md., 1879	1879	1879
Bass, Spencer P., Tarboro; Univ. of Va., 1906	1907	1909
Battle, Ivan Proctor, Rocky Mount; Jeff. Med. Coll., 1904	1905	1914
Boice, E. S., Rocky Mount; Univ. of Pa., 1909	1914	1915
Brantley, Hassell, Spring Hope; Jeff. Med. Coll., 1888	1888	1901
Brantley, J. C., Spring Hope; Jeff. Med. Coll., 1916	1916	1922
Broadway, R. E., Tarboro; Med. Coll. of S. C., 1911	1923	1926
Coppedge, T. O., Nashville; Coll. of Phys. and Surg., Balt., 1908	1909	1917

Name and Address	Licensed	Joined State Society
Cutchin, J. Henry, Whitakers; Univ. Coll. of Med., Rich., 1911..	1911	1915
Deans, A. W., Battleboro; Med. Coll. of Va., 1915.....	1915	1917
Dixon, W. H., Rocky Mount; Jefferson Med. Coll., 1919.....	1919	1922
Ferrell, T. J., Rocky Mount; Univ. of Ga., 1928.....	1931	1932
Fleming, M. I., Rocky Mount; Jeff. Med. Coll., 1904.....	1906	1919
Green, Wm. W., Tarboro; Univ. N. C., 1908.....	1908	1910
Harrell, Samuel N., Tarboro; Univ. of Md., 1897.....	1897	1904
Hines, E. R., Rocky Mount; Med. Coll. of S. C., 1916.....	1916	1917
Jones, W. S., Nashville; 1927.....	1927	1927
Kinlaw, Wm. Bernard, Rocky Mount; Univ. of Pa., 1920.....	1920	1923
Knowles, D. L., Rocky Mount; Univ. of Pa., 1918.....	1918	1920
Lane, John L., Rocky Mount; N. C. Med. Coll., 1906.....	1906	1914
Large, H. Lee, Rocky Mount; Med. Coll. Va., 1917.....	1918	1918
Looney, J. J. W., Rocky Mount; Univ. of Va., 1909.....	1919	1919
Martin, J. H., Red Oaks; Univ. of Nashville, 1903.....	1904	1916
Noell, R. H., Rocky Mount; Univ. of Md., 1916.....	1916	1920
Norfleet, A. C., Tarboro; Univ. of Pa., 1924.....	1925	1927
Perry, E. M., Rocky Mount; P. and S., Balt., 1907.....	1907	1920
Raby, J. G., Tarboro; Univ. Coll. of Med., 1911.....	1911	1912
Smith, C. T., Rocky Mount; Univ. of Pa., 1918.....	1918	1920
Speight, J. A., Rocky Mount; Univ. of La., 1914.....	1915	1916
Staley, S. Walter, Rocky Mount; Med. Coll. of S. C., 1901.....	1901	1914
Stone, M. L., Rocky Mount; Univ. of Pa.....	1928	1929
Sykes, J. V., Rocky Mount; Univ. Pa., 1929.....	1929	1930
Thorp, A. T., Rocky Mount; Univ. of Pa., 1921.....	1921	1923
Willis, B. C., Rocky Mount; Med. Coll. of Va., 1909.....	1916	1916
Winstead, J. A., Rocky Mount; N. C. Med. Coll., 1914.....	1916	1916
Wooten, Amos Monroe, Pinetops; Univ. of N. C., 1910.....	1910	1911

FORSYTH COUNTY SOCIETY

President: Everett A. Lockett, Winston-Salem; Univ. of Pa., 1902.....	1904	1904
Secretary: J. Roy Hege, Winston-Salem; Univ. of Md., 1916...	1916	1917
Ader, O. L., Walkertown; Univ. of Pa., 1925.....	1925	1927
Belton, J. F., Winston-Salem; Univ. of Pa., 1914.....	1914	1916
Benbow, E. V., Winston-Salem; Jeff., 1925.....	1925	1927
Bowers, M. A., Winston-Salem; Tulane Univ., 1911.....	1911	1914
Brown, F. B., Winston-Salem; Univ. of Ga., 1926.....	1926	1930
Butler, Leroy J., Winston-Salem; Med. Coll. of Va., 1915.....	1920	1921
Bynum, John, Winston-Salem (Hon.); Univ. of N. Y., 1892...	1892	1893
Carlton, Romolus L., Winston-Salem; Univ. of Md., 1906.....	1906	1908
Casstevens, J. C., Winston-Salem; Va. Med. Coll., 1926.....	1926	1927
Combs, Fieldings, Winston-Salem; Med. Coll. of Va., 1923.....	1931	1932
Cook, J. L., Winston-Salem; Univ. of Pa., 1925.....	1925	1927
Cooke, G. C., Winston-Salem; Univ. of Md., 1919.....	1919	1920
Couch, V. F., Winston-Salem; P. and S., New York, 1911.....	1911	1919
Craig, S. D., Winston-Salem; Tulane Univ., 1908.....	1911	1912
Dalton, Wm. N., Winston-Salem; N. C. Med. Coll., 1904.....	1904	1905

Name and Address	Licensed	Joined State Society
Davis, Thos. W., Winston-Salem (Hon.); S. C. Med. Coll., 1898	1899	1899
DeLaney, C. O., Winston-Salem; Jefferson, 1919	1919	1926
Dodge, Eva F., Winston-Salem; Med. Coll. Univ. of Md., 1925	1932	1932
Garvey, R. R., Winston-Salem; N. C. Med. Coll., 1915	1915	1919
Gray, Eugene Price, Winston-Salem; Johns Hopkins, 1906	1907	1909
Grimes, W. L., Winston-Salem; Johns Hopkins, 1910	1910	1915
Hanes, F. M., Winston-Salem; Johns Hopkins, 1908	1916	1917
Hart, O. J., Winston-Salem; Med. Coll. of S. C., 1925	1930	1932
Hurdle, S. W., Winston-Salem; Jeff. Med. Coll., 1914	1914	1916
Johnson, Wingate M., Winston-Salem; Jeff. Med. Coll., 1908	1908	1911
Jones, Beverly N., Winston-Salem; Med. Coll of Va., 1915	1915	1921
Kapp, Henry H., Winston-Salem; Jeff. Med. Coll., 1901	1901	1904
Keiger, O. R., Winston-Salem; Univ. Coll. of Med., Richmond, 1911	1911	1914
Kerr, Jas. Edwin, Winston-Salem (Hon.); Univ. of Md., 1897	1898	1898
Kirby, W. L., Winston-Salem; Vanderbilt, 1925	1926	1930
Lassiter, V. C., Winston-Salem; Emory Univ., 1925	1928	1928
Linville, Aaron Y., Winston-Salem (Hon.); Univ. of N. Y., 1889	1889	1896
Long, Vann McKee, Winston-Salem; N. C. Med. Coll., 1906	1906	1911
McCants, C. H. Winston-Salem	....	....
Moore, R. A., Winston-Salem; N. C. Med. Coll., 1911	1911	1917
Munt, H. F., Winston-Salem; Va. Med. Coll., 1911	1914	1916
Paddison, Jno. Robt., Kernersville; Univ. of Md., 1902	1902	1913
Pepper, John Kerr, Winston-Salem; P. and S., Balt., 1907	1908	1908
Perkins, J. R., Winston-Salem; Va. Med. Coll., 1904	1910	1917
Pfohl, Samuel F., Winston-Salem (Hon.); Univ. of Pa., 1894	1898	1898
Pool, B. B., Winston-Salem; Jeff. Med. Coll., 1923	1923	1925
Rankin, S. W., Winston-Salem; Jeff. Med. Coll., 1912	1912	1914
Redfern, T. C., Winston-Salem; L. I. Med. Coll. Hosp., 1916	1921	1921
Richardson, W. P., Winston-Salem; Med. Coll. of Va., 1928	1928	1932
Rousseau, J. P., Winston-Salem; Univ. of Md., 1918	1920	1920
Salmons, L. R., Winston-Salem; N. C. Med. Coll., 1912	1912	1916
Schallert, P. O., Winston-Salem; Univ. of Ill. Med. Dept., 1904	1911	1912
Simmons, R. R., Winston-Salem; Va. Med. Coll., 1917	1923	1924
Slate, John S., Winston-Salem; Univ. Coll. Med., Richmond, Va., 1900	1899	1920
Spainhour, Ellis H., Winston-Salem (Hon.); Balt. Med. Coll., 1898	1898	1898
Speas, D. C., Rt. 2, Winston-Salem; Univ. of Md., 1911	1913	1924
Speas, W. P., Winston-Salem; Med. Coll. of Va.	1911	1912
Spencer, Wm. O., Winston-Salem (Hon.); Jeff. Med. Coll., 1891	1891	1894
Spicer, Richard W., Winston-Salem; N. C. Med. Coll., 1910; Univ. of Pa., 1911	1910	1916
Sprunt, W. H., Jr., Winston-Salem; Univ. of Pa., 1918	1918	1925
Street, C. A., Winston-Salem; Harvard, 1918	1918	1925
Strickland, Edward F., Winston-Salem (Hon.); Univ. of New York, 1887	1887	1893

Name and Address	Licensed	Joined State Society
Thompson, Edg. S., Winston-Salem; Univ. of N. Y., 1919.....	1919	1921
Tuttle, Reuben G., Winston-Salem; N. C. Med. Coll., 1909.....	1909	1913
Valk, A. deT., Winston-Salem; Johns Hopkins, 1910.....	1913	1914
Vestal, T. F., Winston-Salem	....	1932
Wall, R. L., Winston-Salem; Jeff. Med. Coll., 1912.....	1912	1914
Whittington, Jas. B., Winston-Salem; N. C. Med. Coll., 1911....	1911	1913
Wiggins, J. C., Winston-Salem; Univ. of Pa., 1910.....	1910	1911
Wyatt, Wortham, Winston-Salem; Univ. of Pa., 1913.....	1913	1916
Wylie, W. DeK., Winston-Salem; Univ. of Va., 1924.....	1926	1928
Yoder, Paul A., Winston-Salem; Univ. Pa., 1923.....	1923	1925

FRANKLIN COUNTY SOCIETY

President: J. O. Newell, Franklinton; P. and S., Balt., 1910....	1910	1912
Secretary: R. F. Yarborough, Louisburg (Hon.); Geo. Wash. Univ., 1898	1899	1899
Burt, S. P. Louisburg; P. and S., Balt., 1896.....	1896	1904
Perry, A. H., Wood; Univ. of Md. and P. and S., Balt., 1924....	1924	1925
Perry, H. G., Louisburg; P. and S., Balt., 1915.....	1915	1916
Timberlake, C. V., Youngsville; Jefferson Med. Coll., 1915.....	1915	1922
Winston, A. R., Franklinton; Bellevue Med. Coll., 1899.....	1899	1900

GASTON COUNTY SOCIETY

President: J. L. Blair, Gastonia; Atlanta Med. Coll., 1915.....	1920	1921
Secretary: W. A. Anthony, Gastonia	....	1932
Adams, Charles E., Gastonia (Hon.); Univ. of Md., 1897.....	1885	1885
Allen, M. H., Cramerton; Emory Univ., 1929.....	1930	1931
Anders, McT. G., Gastonia (Hon.); Md. Med. Coll., 1901.....	1902	1902
Anthony, J. E., Kings Mountain; Univ. of Tenn., 1911.....	1911	1911
Belk, Geo. W., Gastonia; Atlanta School of Med., 1913.....	1918	1924
Campbell, J. W., Gastonia; P. and S., Balt., 1893.....	1919	1920
Clinton, Roland S., Gastonia; Univ. of Md., 1914.....	1914	1920
Eddleman, Hall M., Gastonia (Hon.); College Phys. and Surg., Balt., 1886	1889	1904
Garrison, D. A., Gastonia (Hon.); Louisville Med. Coll., 1896...	1896	1900
Glenn, Lucius N., Gastonia; Univ. of Md., 1897.....	1897	1904
Groves, R. B., Lowell; Med. Coll. of Va., 1924.....	1924	1924
Hemmingway, J. D., Gastonia; N. C. Med. Coll., 1915.....	1917	1917
Hood, J. Sidney, Gastonia; Jeff. Med. Coll., 1907.....	1907	1910
Howser, Forest M., Cherryville; Univ. of Pa., 1928.....	1929	1930
Hunter, W. B., Gastonia; Univ. of Pa., 1911.....	1911	1920
Jones, W. M., Gastonia.....	....	....
Lyday, C. E., Gastonia; Atlanta Sch. Med., 1910.....	1912	1913
McAdams, C. R., Belmont; N. C. Med. Coll., 1912.....	1912	1916
McChesney, W. W., Gastonia; Med. Coll. Va., 1915.....	1926	1927
McConnell, H. R., Gastonia.....	....	....
McDowell, R. H. Belmont; Univ. of Md., 1929.....	1930	1931
Miller, Oscar L., Charlotte; Atlanta Coll. of P. and S., 1912.....	1921	1922
Miller, R. C., Gastonia; N. C. Med. Coll., 1909.....	1918	1919

Name and Address	Licensed	Joined State Society
Moore, B. D., Mount Holly; Med. Coll. of Va., 1915	1915	1921
Parks, W. B., Gastonia; Univ. of Md., 1924	1924	1927
Patrick, Geo. R., Jr., Bessemer City; Univ. of Md., 1916	1916	1920
Pressly, J. M., Belmont; N. C. Med. Coll., 1915	1915	1920
Pugh, Charles H., Gastonia; N. C. Med. Coll., 1910	1910	1913
Quickel, Thomas C., Gastonia; Tulane Univ., 1900	1899	1904
Reid, James W., Lowell; Jefferson, 1908	1908	1910
Rhyne, Robert Edgar, Gastonia; N. C. Med. Coll., 1907	1907	1908
Roberts, W. M., Gastonia; Tufts, 1925	1928	1929
Swann, Jos. F., Gastonia; P. and S., Balt., 1896	1896	1905
Taylor, B. C., Mount Holly; N. C. Med. Coll., 1910	1911	1923
Wilkins, S. A., Dallas; Univ. of Ky., 1902	1903	1903

GATES COUNTY SOCIETY

President:	....	....
Secretary:	....	....
Blanchard, T. W., Hobbsville; Med. Coll. of Va., 1911	1911	1919
Carter, Thomas L., Gatesville; Med. Coll. of Va., 1917	1917	1928

GRANVILLE COUNTY SOCIETY

President: J. S. Bradsher, Stovall; Univ. of Va., 1925	1925	1927
Secretary: J. C. Elliott, Oxford; Univ. of Md., 1926	1926	1928
Cannady, Samuel H., Oxford; Univ. of Va., 1887	1889	1904
Daniel, N. C., Oxford; N. C. Med. Coll., 1895	1895	1902
Hays, B. K., Oxford (Hon.); Univ. Coll. of Med., Va., 1894	1894	1897
Morris, Joseph A., Oxford (Hon.); Vanderbilt Univ., 1890	1893	1899
Noblin, Roy L., Oxford; Med. Coll. Va., 1924	1924	1924
Slaughter, F. G., Oxford; Johns Hopkins, 1930	1930	1932
Taylor, R. W., Oxford; Tulane Univ., 1926	1926	1928
Taylor, Wm. L., Oxford (Hon.); Univ. of Va., 1900	1901	1901
Thomas, Wm. N., Oxford; Va. Med. Coll., 1911	1911	1914
Thompson, Joseph W., Creedmoor; Ky. Univ. Louisville, 1904	1907	1912

GREENE COUNTY SOCIETY

President: Wm. W. Whittington, Snow Hill (Hon.); Louisville Med. Coll., 1895	1895	1902
Secretary: W. E. Dawson, Hookerton; Jefferson, 1920	1920	1922
Carroll, F. W., Hookerton; Med. Coll. of Va., 1925	1926	1927
Harper, J. H., Snow Hill; Jefferson, 1905	1906	1907
Murphy, W. B., Snow Hill; Univ. Coll. of Med., Va., 1903	1903	1905

GUILFORD COUNTY SOCIETY

President: B. R. Lyon, Greensboro; Columbia Univ., 1915	1920	1920
Secretary: Arthur D. Ownbey, Greensboro; Med. Coll. Va., 1920	1925	1927
Ashworth, W. C., Greensboro (Hon.); P. and S., Balt., 1892	1892	1894
Austin, J. W., High Point; Jeff. Med. Coll., Phila., 1910	1910	1913
Aydlett, H. T., Greensboro; Univ. of Va., 1894	1895	1907

Name and Address	Licensed	Joined State Society
Banner, A. C., Greensboro; Jeff. Med. Coll., 1920	1920	1922
Banner, Chas. W., Greensboro (Hon.); Univ. of Md., 1899	1899	1901
Battle, John T. J., Greensboro (Hon.); P. and S., Balt., 1884	1884	1890
Berry, John, Greensboro; Jeff. Med. Coll., 1908	1908	1920
Best, Benj. W., Greensboro; Coll. of P. and S., Balt., 1884	1884	1920
Bonner, O. B., High Point; Univ. of Md., 1917	1920	1921
Bowman, H. P., Greensboro; Univ. of Tenn., 1894	1894	1905
Boyles, J. H., Greensboro; P. and S., Balt., 1903	1903	1904
Brockmann, Harry L., High Point; Univ. of Pa., 1917	1917	1921
Buie, R. M., Greensboro; Jeff. Med. Coll., 1914	1914	1920
Burrus, John T., High Point (Hon.); Univ. of Md., 1900; Grant Univ., 1902; Davidson College, 1898	1898	1898
Cater, C. D., Greensboro; Emory Univ., 1920	1923	1924
Cater, R. L., Greensboro; Emory Univ., 1916	1932	1932
Coe, Samuel S., High Point; Univ. Coll. of Med., Va., 1911	1912	1913
Cole, Walter F., Greensboro; Johns Hopkins, 1909	1909	1910
Collings, Ruth M., Greensboro; Univ. of Pa., 1923	1926	1927
Cook, H. L., Greensboro; Jeff. Med. Coll., 1918	1918	1920
Cozart, S. R., Greensboro; Med. Coll. of Va., 1923	1923	1925
Davis, P. B., High Point; Jefferson, 1926	1926	1929
Davis, R. B., Greensboro; Med. Coll. of Va., Richmond, 1915	1916	1917
Dees, Ralph Erastus, Greensboro; Univ. of Md., 1906	1908	1909
Dees, Rigdon O., Greensboro; Univ. of Md., 1906	1907	1908
Dick, Julius Vance, Gibsonville; Univ. of N. C., 1907	1907	1908
Durham, C. W., Greensboro; Geo. Wash. Univ., 1927	1928	1929
Dyer, John W., High Point; Univ. of Louisville, 1916	1921	1925
Edwards, V. E., Greensboro; Univ. of Md., 1913	1913	1913
Flagge, Philip W., High Point; Wash. Univ., St. Louis, 1902	1905	1919
Fortune, Alex. F., Greensboro; Univ. Coll. of Med., Va., 1900	1900	1904
Fox, N. A., Greensboro; Univ. of Pa., 1924	1924	1926
Geddie, K. B., High Point; Jeff. Med. Coll., 1921	1921	1923
Gilmore, C. M., Greensboro; Med. Coll. of Va., 1925	1925	1926
Glascock, Joy H., Greensboro; Women's Med. Coll. of Balt., 1896	1896	1907
Gordon, Faith F., Greensboro; Boston Univ. Sch. of Med., 1923	1921	1930
Gove, Anna M., Greensboro (Hon.); Woman's Med. Coll. of New York, Infirmary, 1892	1894	1896
Grayson, C. S., High Point; Geo. Wash. Univ., 1906	1907	1908
Gregg, A. D., Liberty; Med. Coll. of S. C., 1913	1927	1928
Harden, R. N., Greensboro; Univ. of Pa., 1922	1922	1924
Harrison, Edmund, Greensboro (Hon.); Univ. Coll. of Med., 1896	1900	1900
Harrison, Edward T., High Point; Johns Hopkins Medical School, 1926	1926	1928
Harvey, W. W., Greensboro; Emory Univ., 1920	1922	1923
Hiatt, Houston, B., High Point; Univ. of Md., 1907	1907	1910
Holden, E. C., High Point; Long Island Coll. Hosp., 1911	1920	1924
Holt, D. W., Greensboro; Jeff. Med. Coll., 1918	1918	1920
Hudson, C. C., Greensboro; Univ. Coll. of Med. of Va., 1910	1918	1924
Jackson, Walter Leo, High Point; N. C. Med. Coll., 1911	1911	1913

Name and Address	Licensed	Joined State Society
Jarboe, Parron, Greensboro; Georgetown Univ., 1905	1906	1907
Jennings, C. W., Greensboro; Med. Coll. of Va., 1916	1916	1926
Jones, Wm. M., Greensboro; Univ. of Md., 1903	1903	1903
Julian, Charles A., Greensboro (Hon.); Louisville Med. Coll., 1888	1891	1892
Keiger, James A., Greensboro; Univ. of Va., 1916	1916	1919
Keith, Marion Y., Greensboro; Univ. of Md., 1923	1923	1927
Knight, Wm. P., Greensboro (Hon.); Balt. Med. Coll., 1898	1898	1898
Lackey, M. A., High Point; N. C. Med. Coll., 1917	1923	1924
Le Bauer, M. L., Greensboro; Univ. of Va., 1929	1930	1932
Le Bauer, S. F., Greensboro; Univ. of Va., 1929	1930	1932
Long, E. F., High Point; Med. Coll. of Va., 1909	1909	1912
Lyday, R. O., Greensboro; Univ. of Pa., 1920	1920	1927
McAnally, Wm. J., High Point (Hon.); Balt. Med. Coll., 1897	1896	1899
McCain, Walkup K., High Point; Jeff., 1929	1929	1930
McCain, Wm. R., High Point (Hon.); Univ. of Md., 1897	1898	1898
McGee, J. M., Greensboro; Univ. of Pa., 1925	1927	1927
McManus, W. L., Greensboro; Atlanta School of Med., 1906	1912	1913
Maness, A. K., Greensboro; Jeff. Med. Coll., 1928	1928	1929
Mann, I. Thurman, High Point; Jeff. Med. Coll., 1912	1912	1915
Meadows, W. J., Greensboro; Med. Coll. of Ala., 1894	1899	1904
Miles, May S., Greensboro; Laura Mem. Women's Coll. of Med., Cincinnati, Ohio, 1898	1904	1905
Moseley, Charles W., Greensboro (Hon.); Balt. Med. Coll., 1893	1893	1896
Neese, Kenneth E., Asheville; Wash. Univ., 1929	1929	1930
Norment, W. B., Greensboro; Jeff. Med., 1922	1922	1932
Ogburn, H. H., Greensboro; Johns Hopkins Univ., 1913	1913	1914
Parker, H. R., Greensboro; Univ. of Syracuse, 1923	1924	1925
Pate, F. J., Greensboro; Univ. of Md., and P. and S., Balt., 1908	1908	1915
Patman, W. L., Greensboro; Harvard Med. School, 1921	1926	1927
Patterson, Fred M., Greensboro; Univ. of Pa., 1924	1924	1928
Perry, Robt. E., Greensboro; Univ. of Pa., 1921	1921	1925
Post, J. J., Greensboro; Columbia Univ., 1919	1925	1926
Ravenel, S. F., Greensboro; Johns Hopkins, 1923	1923	1926
Reaves, C. R., Greensboro; Univ. of the South, 1906	1913	1913
Reaves, W. P., Greensboro; Univ. of the South, 1903	1905	1907
Reitzel, Claude E., High Point (Hon.); P. & S., Atlanta, 1902	1902	1902
Rhudy, Booker E., Greensboro; Med. Coll. Va., 1916	1926	1927
Robinson, Robt. S., Greensboro; Med. Coll. of Va., 1930	1930	1932
Saunders, S. Stewart, High Point; Harvard Med. School, 1924	1926	1927
Schoonover, R. A., Greensboro; Baltimore Med. Coll., 1905	1912	1912
Sharp, O. L., Greensboro; Jeff. Med. Coll., 1922	1924	1925
Sharpe, F. A., Greensboro; Univ. of Va., 1916	1916	1920
Shelburne, P. A., Greensboro; Univ. of Va., 1927	1928	1928
Shohan, Joseph, Greensboro; Coll. P. and S., Balt., 1901	1914	1924
Simmons, L. L., Greensboro; Univ. of Tenn., 1893; Vanderbilt Univ., 1899	1918	1919
Slate, J. W., High Point; Univ. Coll. of Med., Rich., 1900	1899	1925

Name and Address	Licensed	Joined State Society
Smith, Alick T., Greensboro; Med. Coll. of Va., 1908	....	1913
Spoon, A. O., Greensboro; Univ. of N. C., 1908	1908	1910
Spruill, Jos. L., Jamestown; Univ. of Md., 1895	1895	1907
Stanton, D. A., High Point (Hon.); Vanderbilt Univ., 1887	1887	1891
Starr, H. F., Greensboro; Jeff. Med. Coll., 1916	1916	1917
Sumner, E. A., High Point; Baylor Univ., Tex., 1925	1926	1927
Tankersley, J. W., Greensboro; Jeff. Med. Coll., 1906	1906	1907
Taylor, F. R., High Point; Univ. of Pa., 1913	1913	1915
Taylor, James N., Greensboro; Med. Coll. of Va., 1901	1902	1905
Taylor, Jas., T., Greensboro; Univ. of Mo.; Coll. of P. and S., Balt., 1908	1908	1910
Taylor, S. R., Greensboro; Univ. of Pa., 1921	1921	1924
Taylor, Wesley, Greensboro; U. of Mich., 1899	1925	1926
Thomas, J. G., Greensboro; Med. Coll. Va., 1915	1915	1920
Thompson, C. D., High Point; Univ. of Tenn., 1901	1901	1904
Turner, J. P., Greensboro; Univ. of Md., 1896	1897	1904
Whittington, Claude, Greensboro; Univ. of Md., 1927	1927	1929
Wilkerson, C. E., Greensboro; Univ. of Nashville, 1907	1908	1909
Williams, John D., Guilford Station (Hon.); Vanderbilt Univ., 1898	1898	1898
Wilson, Albert R., Greensboro (Hon.); Jeff. Med. Coll., 1882	1882	1882
Wolfe, H. C., Greensboro; Med. Coll. of Va., 1917	1917	1920
Wolff, D. R., Greensboro; Jeff. Med. Coll., 1918	1918	1920
Woodruff, Fred G., High Point; Med. Coll. of Va., 1917	1917	1919
York, Alexander A., High Point; Chattanooga Med. Coll., 1907	1907	1909

HALIFAX COUNTY SOCIETY

President: F. G. Jarman, Roanoke Rapids; Univ. Coll. of Med., Va., 1911	1914	1916
Secretary: Z. P. Mitchell, Weldon; Med. Coll. of Va., 1920	1920	1921
Beckwith, R. P., Roanoke Rapids; Univ. of Pa., 1911	1913	1916
Lassiter, H. G., Weldon; Jeff. Med. Coll., 1918	1918	1920
Long, T. W. M., Roanoke Rapids; Univ. Coll. of Med., Va., 1908	1909	1910
McDaniel, L. E., Jackson; Univ. of Md., 1911	1915	1916
Martin, J. W., Roanoke Rapids; Med. Coll. of Va., 1916	1919	1920
Neville, C. H., Scotland Neck; Tulane Univ., 1927	1927	1927
Nicholson, B. M., Enfield; Va. Univ. Coll. of Med., 1910	1910	1913
Parker, J. W., Seaboard; Med. Coll. of Va., 1927	....	1929
Royster, Thomas H., Roanoke Rapids; Univ. Coll. of Med., Richmond, 1908	1908	1914
Smith, O. F., Scotland Neck; Univ. Coll. of Va., 1899	1899	1904
Suiter, W. G., Weldon; Med. Coll. of Va., 1917	1917	1920
Weathers, Bahnson, Rosemary; Wash. Univ. Med. School, St. Louis, 1917	1921	1922

HARNETT COUNTY SOCIETY

President: C. L. Corbett, Dunn; Emory Univ., 1927	1927	1928
Secretary: A. T. Wyatt, Lillington; Jeff. Med. Coll., 1919	1919	1927

Name and Address	Licensed	Joined State Society
Halford, Jos. W., Lillington; Geo. Wash. Univ., 1904	1905	1905
Hicks, Isham Faison, Dunn; N. C. Med. Coll., 1902	1902	1904
Highsmith, Charles, Dunn (Hon.); Balt. Med. Coll., 1898	1898	1898
Holt, Wm., P., Erwin (Hon.); Jeff. Med. Coll., 1895	1895	1901
Holt, Wm. P., Jr., Erwin; Jeff. Med. Coll., 1926	1926	1927
McKay, Joseph F., Buies Creek (Hon.); S. C. Med. Coll., 1884	1885	1900
McLean, John W., Godwin; N. C. Med. Coll., 1902	1902	1906
Martin, J. F., Dunn; N. C. Med. Coll., 1905	1905	1918
Melvin, Wayman C., Linden; Univ. Coll. of Med., Richmond, 1900	1900	1905
Odell, J. W., Dunn; Med. Dept. Univ. of Ga., 1926	1928	1929
Parker, Paul G., Erwin; Med. Coll. of Va., 1916	1916	1917
Sexton, C. Hector, Dunn; Univ. of Md., 1890	1890	1904
Young, C. R., Angier; Univ. Coll. of Med., Richmond, 1909	1908	1909

HAYWOOD COUNTY SOCIETY

President: W. L. Kirkpatrick, Waynesville; Univ. Vanderbilt, 1894	1894	1895
Secretary: J. R. McCracken, Waynesville; N. C. Med. Coll., 1902	1902	1903
Abel, J. F., Waynesville (Hon.); Univ. of Balt., 1892	1892	1899
Davis, F. M., Canton; Vanderbilt Univ., 1894	1894	1904
Duckett, V. H., Canton; Univ. of Pa., 1930	1930	1932
Francis, Wm. G., Waynesville; Jeff. Med. Coll., 1915	1916	1925
Johnson, W. C., Canton; Tulane Univ. of La., 1912	1912	1917
Pate, J. F., Canton; Med. Coll. of S. C., 1927	1927	1928
Reeves, J. L., Canton; Vanderbilt, 1913	1913	1917
Russell, Jesse M., Canton; Univ. of Nashville, 1911	1911	1912
Stretcher, R. H., Waynesville; Med. Coll. of S. C., 1927	1926	1930
Stringfield, Samuel L., Waynesville; Jeff. Med. Coll., 1905	1905	1907
Stringfield, Thomas, Waynesville (Hon.); Vanderbilt Univ., 1898	1898	1899

HENDERSON COUNTY SOCIETY

President: J. H. Woodcock, Hendersonville; Hos. College of Med., 1892	1894	1899
Secretary: L. R. Staton, Hendersonville; Univ. of Md., 1929	1929	1931
Brown, J. S., Hendersonville (Hon.); Northwestern Univ., 1893	1894	1895
Cliff, B. F., Hendersonville; Geo. Washington Univ., 1908	1909	1915
Dixon, Guy E., Hendersonville (Hon.); P. and S., St. Louis, 1903	1903	1903
Edgerton, Jas. L., Hendersonville (Hon.); Univ. of Md., 1877	1889*	1890
Fauntleroy, Jas. W., Zirconia; P. and S., Columbia	1900	1930
Kirk, W. R., Hendersonville; Central Univ., 1891	1901	1903
Mallett, E. P., Hendersonville; L. I. Coll. Hosp., Brooklyn, 1889	1914	1914
Sample, R. C., Hendersonville; Univ. of Pa., 1915	1915	1919
Sumner, Thos. W., Fletcher; Jefferson Med. Coll., 1910	1910	1911
Weddington, J. L., Hendersonville; Sou. Med. Coll., Atlanta, 1898	1925	1926

* Registered.

HERTFORD COUNTY SOCIETY

Name and Address	Licensed	Joined State Society
President: L. M. Futrell, Murfreesboro; Va. Med. Coll., 1914...	1914	1918
Secretary: J. Gaddy Matheson, Ahoskie; Jeff., 1929.....	1929	1931
Mitchell, Paul H., Ahoskie; Univ. Coll. of Med., Richmond, 1907	1907	1908
Pollard, W. B., Winton; Univ. of Pa., 1899.....	1903	1905
Walker, L. K., Ahoskie; Univ. of Md., 1911.....	1911	1917

HOKE COUNTY SOCIETY

President: J. H. Williams, Sanatorium; Jeff. Med. Coll., 1920..	1920	1922
Secretary: R. L. Murray, Raeford; Univ. of Md., 1923.....	1923	1925
Bittinger, S. M., Sanatorium; Geo. Wash. Univ., 1918.....	1924	1924
Brown, G. W., Raeford; Ky. School of Med., Louisville, 1898...	1900	1900
Easom, H. F., Sanatorium; Wash. Univ. Med. School.....	1929	1929
Hooker, J. S., Sanatorium; Emory Univ., 1923.....	1923	1924
Hooks, W. B., Sanatorium; Richmond, 1930.....	1930	1932
McBrayer, L. B., Southern Pines (Hon.); Louisville Med. Coll., 1899	1899	1900
McCain, P. P., Sanatorium; Univ. of Md., and Coll. P. and S., Balt., 1911	1914	1914
Matheson, R. A., Raeford; Jeff. Med. Coll., 1926.....	1926	1928
Thomas, C. D., Sanatorium; Univ. of Indiana, 1926.....	1930	1930
Thornton, W. F., Sanatorium; Baylor Univ., 1927.....	1927	1931

HYDE COUNTY SOCIETY

President:	....	....
Harris, Arthur Graham, Fairfield; Univ. of the South, 1905.....	1905	1908

IREDELL-ALEXANDER COUNTIES SOCIETY

President: Jas. W. Davis, Statesville; Univ. of Pa., 1913.....	1913	1915
Secretary: Chas. B. Herman, Statesville; Jeff. Med. Coll., 1923..	1923	1925
Adams, M. R., Statesville (Hon.); Univ. of Md., 1878.....	1884	1884
Alexander, Jas. M., Statesville; Georgetown Univ., 1925.....	1926	1927
Anderson, R. S., Statesville; Univ. of Md., 1924.....	1924	1932
Anderson, Thos. Eli., Statesville (Hon.); Jeff. Med. Coll., 1878	1879	1879
Asbill, David S., Statesville; Grad. Med. Coll. of S. C., 1926....	1929	1930
Asburn, C. W., Statesville; Wash. Univ., 1927.....	1927	1928
Bell, A. E., Mooresville; Univ. of Md., and Coll. of P. and S., 1897	1897	1904
Brawley, R. L., Mooresville; Univ. of Pa., 1929.....	1929	1932
Crouch, T. D., Stony Point; N. C. Med. Coll., 1909, and Univ. of Md., 1910.....	1909	1915
Easley, P. S., Statesville; N. C. Med. Coll., 1907; Jeff. Med. Coll., 1908	1907	1913
Gilmore, W. D., care of: State Sanatorium, Howell, Mich.; Univ. of N. C., 1903.....	1903	1904
Goode, T. V., Statesville; Univ. Coll. of Med., Va., 1912.....	1912	1916
Jurney, Peter Claywell, Turnersburg; Med. Coll. of Va., 1901..	1901	1904
Little, E. E., Statesville, Rt. 6; N. C. Med. Coll., 1912.....	1912	1915

Name and Address	Licensed	Joined State Society
Little, Lonnie M., Statesville; Jeff. Med. Coll., 1925	1925	1927
Long, H. F., Statesville (Hon.); Balt. Med. Coll., 1891	1892	1893
McElwee, Ross S., Statesville; Univ. of Md., 1909	1909	1910
McLaughlin, J. E., Statesville (Hon.); Univ. of Md., 1886	1886	1896
McLelland, W. D., Mooresville; Jeff. Med. Coll., 1913	1913	1917
Mitchell, G. T., Jennings; Jeff. Med. Coll., 1927	1927	1928
Myers, D. L., Jennings; Tulane, 1925	1928	1929
Nicholson, C. R., Statesville; N. C. Med. Coll., 1912	1912	1916
Poston, J. Lewis, Statesville; Jeff. Med. Coll., 1922	1923	1924
Pressly, Jas. L., Statesville; Jeff. Med. Coll., 1925	1925	1928
Rhyne, S. A., Statesville; N. C. Med. Coll., 1915	1915	1920
Sharpe, Frank L., Statesville; Univ. of N. C., 1904	1904	1905
Shaw, L. R., Statesville; Med. Coll., of Va., 1930	1930	1931
Sherrill, C. L., Statesville; N. C. Med. Coll., 1914	1914	1915
Sloan, A. B., Mooresville; Med. Coll. of Va., 1924	1924	1926
Talley, J. A., Troutman; Univ. of N. C., 1909	1910	1917
Tatum, Roy C., Statesville; Jeff. Med., 1919	1919	1920
Taylor, G. W., Mooresville; N. C. Med. Coll., 1906	1906	1917
Templeton, J. Y., Mooresville; Jeff. Med. Coll., 1912	1913	1927
Thurston, Asa, Taylorsville; Univ. of Md., 1909	1909	1914
Trivette, W. A., Hamptonville; Med. Coll. of Va., 1916	1916	1925
Waddell, Robert L., Mooresville; Med. Coll. of Va., 1929	1929	1930
Ware, Ford, Mooresville; Univ. of Ga. Med. Dept., 1912	1931	1932

JACKSON COUNTY SOCIETY

President: Chas. Z. Candler, Sylva; P. and S., Atlanta, 1901	1901	1904
Secretary: D. D. Hooper, Sylva; Univ. of Med., Va., 1905	1905	1905
Madison, W. H. Sylva	....	....
Nichols, Alvin A., Sylva; Univ. of Nashville Med. Dept., 1898	1904	1904
Nichols, Asbury S., Sylva; Tenn. Med. Coll., 1906	1907	1913
Van Epp, Owen B., Cashiers; Cleveland Pulte Med. Coll., 1900	1923	1923
Wilkes, Grover C., Sylva; N. C. Med. Coll., 1916	1916	1920

JOHNSTON COUNTY SOCIETY

President: G. S. Coleman, Kenly; Med. Coll. of Va., 1907	1907	1909
Secretary: Edwin N. Booker, Selma; Grad. Univ. of Va., 1925	1925	1930
Aycock, F. M., Princeton; Med. Coll. of Va., 1921	1921	1926
Davidian, Vartan A., Smithfield; Univ. Kiev, Russia	1929	1930
Duncan, S. A., Benson; Tulane Univ., 1924	1924	1926
Fitzgerald, J. Herbert, Smithfield; Jeff. Med. Coll., 1920	1920	1922
Grady, Jas. C., Kenly (Hon.); Balt. Univ. School of Med., 1887	1887	1890
Hocutt, Battle A., Clayton; Univ. of N. C., School of Med., 1906	1906	1908
Hooks, Thel., Smithfield; Med. Coll. of Va., 1901	1901	1903
McLemore, George A., Smithfield; Univ. of N. C., 1906	1906	1908
Massey, C. C., Smithfield; Jeff. Med. Coll., 1923	1923	1925
Noble, R. J., Selma (Hon.); Ky. Med. School, 1875	1878	1878
Oliver, Robert D., Pine Level	....	1932

Name and Address	Licensed	Joined State Society
Parker, G. E., Benson (Hon.); Coll. of P. and S., Balt., 1886...	1889*	1904
Person, J. B., Selma (Hon.); Med. Coll. of Va., 1897.....	1897	1900
Rose, A. H., Smithfield; Jeff. Med. Coll., 1906.....	1906	1907
Stanley, John H., Four Oaks; Univ. of N. C., 1904.....	1904	1906
Utley, H. H., Benson; Balt. Med. Coll., 1906.....	1906	1910
Vick, Geo. D., Selma; Jeff. Med. Coll., 1906.....	1906	1907
Wilson, W. G., Smithfield; Jeff. Med. Coll., 1921.....	1921	1924

JONES COUNTY SOCIETY

President: A. F. Hammond, Pollocksville; Univ. Coll. of Med., Va., 1903	1903	1914
Secretary: B. W. Page, Trenton; Tulane Univ., 1909.....	1909	1919
Bell, J. C., Maysville; P. and S., Balt., 1910.....	1915	1922

LEE COUNTY SOCIETY

President: George G. Chiles, Durham; Med. Coll. of Va., 1926..	1928	1928
Secretary: Floyd L. Knight, Sanford; Univ. of Va., 1924.....	1925	1926
Blue, Waylon, Jonesboro; Med. Coll. of Va., 1925.....	1925	1926
Foster, J. F., Sanford; N. C. Med. Coll., 1916.....	1916	1919
Lutterloh, I. H., Sanford; Vanderbilt Univ., 1890.....	1894*	1922
Lutterloh, I. Hayden, Jr., Sanford; Jeff. Med. Coll., 1921.....	1921	1922
McIver, Lynn, Sanford; Kentucky Univ., 1901.....	1902	1902
Matthews, M. L., Sanford; Univ. of N. C., 1903.....	1903	1904
Monroe, J. P., Sanford; P. and S., Balt., 1901.....	1901	1905
O'Briant, A. L., Sanford; Jeff. Med. Coll., 1920.....	1920	1922
Scott, Charles L., Sanford; Univ. of Md., 1897.....	1899	1916
Sowers, Roy G., Jonesboro; Univ. of Md., 1923.....	1923	1924
Watson, Leon, Broadway; N. C. Med. Coll., 1900.....	1900	1904

LENOIR COUNTY SOCIETY

President: B. C. West, Kinston; Univ. of Pa., 1924.....	1924	1926
Secretary: Elwood R. Boney, Kinston; Univ. of Pa., 1926.....	1926	1927
Carr, M. L., La Grange; Med. Coll. of Va., 1916.....	1916	1920
Dixon, Wm. H., Kinston (Hon.); Med. Coll. of Va., 1901.....	1901	1901
Hardy, Ira M., Kinston (Hon.); Med. Coll. of Va., 1901.....	1902	1902
Lee, Mike, Kinston; Tulane Univ., 1926.....	1926	1927
Lee, Thos. L., Kinston; Med. Coll. Va., 1926.....	1926	1927
McCuiston, A. M., Kinston; N. C. Med. Coll., 1911.....	1911	1917
Mangum, C. P., Kinston; Jeff. Med. Coll., 1918.....	1918	1920
Moseley, Z. V., Kinston; Va. Univ. Coll. of Med., 1913.....	1913	1914
Parrott, Albert DeK., Kinston; Univ. Coll. of Med., 1906.....	1906	1908
Parrott, M. C., Kinston; Tulane Univ., 1917.....	1917	1919
Parrott, Wm. T., Kinston (Hon.),; Tulane Univ., 1899.....	1899	1901
Peery, Vance P., Kinston; Med. Coll. of Va., 1916.....	1917	1917
Sabiston, Frank, Kinston; Univ. of Md., 1918.....	1919	1926
Tyndall, R. G., Kinston; Univ. of Pa., 1928.....	1928	1931
West, C. F., Kinston; Univ. of Pa., 1917.....	1917	1920

* Registered.

Name and Address	Licensed	Joined State Society
Whitaker, Paul F., Kinston; Med. Coll. of Va., 1922	1922	1924
Wooten, Floyd P., Kinston; Jeff. Med. Coll., 1920	1920	1923

LINCOLN COUNTY SOCIETY

President: W. G. Bandy, Lincolnton; Vanderbilt Univ., 1908	1912	1916
Secretary: W. V. Costner, Lincolnton; Jeff. Med. Coll., 1924	1925	1927
Cornwell, A. M., Lincolnton; Geo. Wash. Univ., 1927	1927	1928
Crowell, L. A., Lincolnton (Hon.); Balt. Med. Coll., 1892	1892	1898
Crowell, L. A., Jr., Lincolnton; Tulane Med. Dept., 1930	1930	1930
Davidson, John E. S., Charlotte (Hon.); Univ. of Md., 1894	1898	1898
Edwards, F. D., Lawndale, R. 1; Atlanta Med., 1914	1916	1919
Elliott, W. F., Lincolnton; Pa. Medico-Chir. Coll., 1916	1916	1917
Gamble, J. F., Lincolnton; Univ. of Tenn., 1903	1915	1919
Gamble, J. R., Lincolnton; Univ. of Tenn., 1911	1911	1912
Hoover, C. H., Crouse; Chattanooga Med. Coll., 1900; Balt. Med. Coll., 1903	1903	1903
Jacocks, W. P., New York City; Univ. of Pa., 1911	1911	1913

McDOWELL COUNTY SOCIETY

President: J. F. Miller, Marion; Med. Chi. Phila., 1906	1915	1919
Secretary: R. B. Butt, Marion; Emory Univ., Atlanta, 1920	1920	1921
Ashworth, B. L., Marion (Hon.); P. and S., Balt., 1892	1893	1900
Johnson, John B., Old Fort; Univ. Louisville Med. Dept., 1905	1914	1914
Jonas, John F., Marion; Balt. Med. Coll., 1903	1903	1903
Justice, Gaston B., Marion; P. and S., Atlanta, 1907	1907	1907
Kirby, Guy S., Marion; Univ. Coll. of Va., 1897	1896	1903
McIntosh, D. M., Old Fort; Med. Coll. of Va., 1904	1907	1909
Robinson, W. A., Old Fort; Med. Coll. of Va., 1900	1903	....
Wood, Frank, Marion; Univ. of Pa., 1928	1931	1932

MACON-CLAY COUNTIES SOCIETY

President:	....	....
Secretary:	....	....
Angel, F., Franklin; Jeff. Med. Coll., 1918	1923	1924
Lyle, S. H., Franklin (Hon.); Univ. of Nashville, 1883	1881	1882
Rogers, W. A., Franklin (Hon.); Univ. of Nashville, 1898	1898	1898

MADISON COUNTY SOCIETY

President:	....	....
Secretary:	....	....
Kimberly, David, Jr., Hot Springs; Univ. of Cinn., 1924	1926	1927
Moore, Jos. N., Marshall; Univ. of N. C., 1905	1905	1909
Robinson, Willard F., Mars Hill; Vanderbilt Univ., 1896	1903	1904
Sams, W. A., Marshall; Lincoln Memo., 1911	1919	1920

MARTIN COUNTY SOCIETY

President:	....	....
Secretary:	....	....

Name and Address	Licensed	Joined State Society
Nelson, Robert J., Robersonville (Hon.); Louisville Med. Coll., 1890	1890	1893
Pittman, E. E., Oak City; Med. Coll. of Va., 1919	1919	1920
Saunders, Jos. H., Williamston; Univ. Coll. of Med., Va., 1905	1905	1909
Rhodes, Jas S., Williamston; Med. Coll. of Va., 1906	1906	1907

MECKLENBURG COUNTY SOCIETY

President: S. R. Thompson, Charlotte; N. C. Med. Coll., 1914	1914	1915
Secretary: R. B. McKnight, Charlotte; Univ. of Pa., 1920	1920	1928
Abernathy, H. N., Charlotte (Hon.); Louisville Med. Coll., 1894	1894	1899
Alexander, Jas. R., Charlotte (Hon.); Univ. of Md., 1894	1894	1899
Alexander, M. Janet, Montgomery, India; Women's Med. Coll., Pa., 1917	1917	1918
Allan, William, Charlotte; P. and S., Balt., 1906	1906	1914
Ashe, J. R., Charlotte; Columbia Univ., 1911	1915	1915
Austin, D. R., Charlotte; Jeff. Med. Coll., 1917	1917	1918
Austin, Frederick De Costa, Charlotte; N. C. Med. Coll., 1907	1907	1908
Barret, H. P., Charlotte; Univ. of Louisville, 1908	1917	1919
Barron, A. A., Charlotte; Vanderbilt Univ., 1909	1910	1910
Black, Geo. Wm., Charlotte; Med. Coll. of Va., 1924	1924	1925
Blair, Andrew, Charlotte; U. of Pa., 1924	1925	1926
Bost, T. C., Charlotte; Geo. Washington Univ., 1915	1920	1921
Bradford, W. Z., Long Island Coll. Hospital, Brooklyn, N. Y., Univ. of Pa., 1928	....	1930
Brenizer, A. G., Jr., Charlotte; Johns Hopkins, 1908, and Univ. of Heidelberg	1911	1911
Britt, C. S., Charlotte; Emory Univ., 1920	1925	1926
Buckner, Margaret, Charlotte; Med. Coll. of Va., 1929	1929	1932
Craven, Thomas, Huntersville; Jeff. Med. Coll., 1917	1917	1918
Craven, W. W., Charlotte; Univ. of Md., 1903	1904	1904
Crowell, Andrew J., Charlotte (Hon.); Univ. of Md., 1893	1892	1894
Davis, Stephen W., 501 Professional Bldg., Charlotte, N. C.; Univ. of Pa. Med. School, 1927	1927	1929
De Armon, J. McC., 4 McKinnon Bldg., Charlotte (Hon.); Univ. of Md., 1886	1886	1887
Donnelly, J., Huntersville; Univ. of N. C., 1905	1905	1918
Elliott, J. A., Charlotte; Univ. of Mich., 1914	1919	1920
Faison, Yates W., Charlotte; Harvard Univ., 1910	1910	1912
Ferguson, R. T., Charlotte; Univ. Coll. of Va., 1906	1909	1909
Fetner, L. M., Charlotte; N. C. Med. Coll., 1914	1914	1915
Gage, L. G., Charlotte; Univ. of Va., 1915	1921	1922
Gallant, Robert M., Charlotte; N. C. Med. Coll., 1915	1915	1916
Gaul, John Stuart, Charlotte; Medico-Chir., Phila., 1913	1922	1923
Gibbon, James W., Charlotte; Jeff. Med. Coll., 1918	1920	1921
Gibbon, Robert L., Charlotte (Hon.); Jeff. Med. Coll., 1887	1887	1888
Hamer, W. A., Chadwick; Univ. of Md., 1930	1930	1932
Hand, Edgar H., Charlotte; N. C. Med. Coll., 1907	1907	1913
Hart, V. K., Charlotte; Univ. of Pa., 1921	1924	1925

Name and Address	Licensed	Joined State Society
Hipp, Edw. R., Charlotte; Univ. of Va., 1918	1920	1921
Holton, Thos. J., Charlotte; Emory Univ., 1909	1925	1926
Houser, O. J., Charlotte; N. C. Med. Coll., 1914	1914	1916
Hovis, L. W., Charlotte; N. C. Med. Coll., 1904	1904	1906
Hunter, L. W., Charlotte, Route 1 (Hon.); Bellevue Hosp., N. Y., 1875	1880	1880
Hunter, W. Myers, Charlotte; Georgetown Univ., 1905	1906	1908
Irwin, Hammer C., Pocatella, Idaho; Univ. of Md., 1905	1908	1916
Johnston, J. G., Charlotte; Med. Dept. Vanderbilt Univ., 1899	1913	1916
Kelleher, L. B., Charlotte; Med. Coll. Va., 1926	1927	1929
Kelly, Luther W., Charlotte; Univ. of Va., 1924	1926	1927
Kennedy, John P., Charlotte; Jeff. Med. Coll., 1915	1915	1920
King, Parks M., Charlotte; Bellevue Med. Coll., 1902	1902	1904
Kremer, C. E., Jr., Charlotte; Harvard Univ., 1929	1931	1932
Lafferty, Robert H., Charlotte; N. C. Med. Coll., 1906	1906	1908
Leinbach, Robt. F., Charlotte; Univ. of Pa., 1907	1907	1910
MacConnell, John W., Davidson; Univ. of Md., 1907	1908	1909
McCoy, Thos. M., Charlotte; N. C. Med. Coll., 1905	1906	1910
McFadden, R. H., Charlotte; S. C. Med. Coll., 1912	1927	1927
McGregor, Geo. D., Charlotte; Univ. of Va., 1925	1927	1928
McKay, Hamilton W., Charlotte; N. C. Med. Coll., 1909; Jeff. Med. Coll., 1910	1911	1913
McKay, Robert W., Charlotte; Johns Hopkins, 1923	1928	1928
McLaughlin, Calvin S., Charlotte; Univ. of Md., 1896	1896	1903
McLesky, J. H., Charlotte; Univ. of Ga., 1909	1927	1928
McPhail, L. D., Charlotte; Univ. of Md., 1900	1900	1902
Martin, Wm. F., Charlotte; Univ. of Md., 1920	1920	1923
Martin, W. J., Richmond, Va.; Univ. of Va., 1890	1891	1919
Matheson, James P., Charlotte; Univ. of Md., 1905	1902	1907
Mathews, Vann M., Charlotte; Univ. of Pa., 1918	1918	1921
Misenheimer, Thos. M., Charlotte; S. C., Med. Coll., 1925	1925	1927
Moore, Alexander W., Charlotte; Univ. of Va., 1901; Univ. and Bellevue Hosp. Med. Coll., 1902	1912	1913
Moore, Oren, Charlotte; N. C. Med. Coll., 1911	1911	1912
Moore, R. A., Charlotte; Univ. of Pa., 1923	1924	1925
Morgan, A. E., Huntersville; Jeff. Med. Coll., 1929	1929	1932
Motley, Fred Elliot, Charlotte; Univ. of Mich., 1922	1926	1927
Munroe, H. Stokes, Charlotte; N. C. Med. Coll., 1902; Jeff. Med., 1903	1902	1904
Munroe, J. P., Charlotte (Hon.); Univ. of Va., 1885	1886	1890
Myers, Alonzo, Charlotte; N. C. Med. Coll., 1911; Bellevue Hosp. Med. Coll., 1916	1911	1920
Myers, John Q., Charlotte; N. C. Med. Coll., 1904	1904	1904
Nalle, B. C., Charlotte; Univ. of Va., 1903	1905	1905
Nance, C. L., Charlotte; N. C. Med. Coll., 1919	1921	1922
Neblett, H. C., Charlotte; Med. Coll. of Va., 1914	1921	1929
Newton, Howard L., Charlotte; Northwestern Univ., 1921	1923	1924

Name and Address	Licensed	Joined State Society
Nisbet, D. Heath, Charlotte; Harvard Med. Dept., 1917	1917	1920
Nisbet, Walter O., Charlotte (Hon.); Med. Coll. of S. C., 1889	1889	1889
Northington, J. M., Charlotte; Med. Coll. of Va., 1905	1909	1909
Nowlin, Preston, Charlotte; Univ. of Va., 1924	....	1930
Patterson, Reid, Charlotte; N. C. Med. Coll., 1912	1912	1913
Peeler, Clarence N., Charlotte; N. C. Med. Coll., 1906	1906	1908
Petteway, George H., Charlotte; N. C. Med. Coll., 1913	1913	1914
Phillips, C. C., Charlotte; N. C. Med. Coll., 1912	1912	1917
Pressly, Geo. W., Charlotte (Hon.); Jeff. Med. Coll., 1892	1895	1896
Rankin, Watson S., Charlotte (Hon.); Univ. of Md., 1901	1901	1901
Ranson, J. Lester, Charlotte; N. C. Med. Coll., 1911	1911	1912
Ray, F. L., Charlotte; Univ. of Va., 1919	1919	1922
Reid, Thomas N., Matthews; N. Y. Univ. Med. Coll., 1891	1891	1904
Ross, Otho B., Charlotte; Univ. of Pa., 1909	1909	1912
Ross, Thos. W., Charlotte; Jeff. Med. Coll., 1927	1927	1930
Sasser, T. J., Charlotte; Univ. Ga. Med. Dept., 1926	1929	1929
Scruggs, W. Marvin, Charlotte; Univ. of Pa., 1914	1914	1920
Shirley, H. C., Charlotte; Johns Hopkins, 1918	1921	1922
Shull, J. Rush, Charlotte; Univ. of Pa., 1910	1910	1913
Sloan, H. L., Charlotte; Univ. of Pa., 1911	1913	1914
Smith, F. C., Charlotte; Jeff. Med., 1921	1921	1925
Sparrow, Thos. De L., Charlotte; Univ. of Pa., 1920	1920	1923
Squires, Claude B., Charlotte; Jeff. Med. Coll., 1919	1919	1921
Strong, Charles M., Charlotte (Hon.); Univ. of Md., 1889	1889	1898
Strong, Wm. M., Charlotte; N. C. Med. Coll., 1904	1904	1905
Taylor, H. C., Charlotte, Chadwick Sta.; Tenn. Med., 1886	1910	1915
Todd, L. C., Charlotte; Univ. of Mich., 1918	1920	1920
Townsend, M. L., Washington, D. C.; Indiana Med. Coll., 1906	1912	1913
Tucker, John H., Charlotte; Univ. of Va., 1889	1901	1911
Tydeman, F. W. L., St. Louis, Mo.; N. C. Med. Coll., 1912	1912	1918
Wakefield, Harry A., Charlotte; N. C. Med. Coll., 1908	1908	1911
Wannamaker, Edward J., Jr., Charlotte; Univ. of Pa., 1921	1924	1924
Whisnant, Albert M., Charlotte (Hon.); P. and S., Balt., 1893	1893	1899
White, Thomas Preston, Charlotte; Univ. of Pa., 1922	1924	1925
Wingate, G. C., Charlotte; N. C. Med. Coll., 1914	1915	1919
Winkler, Harry, Charlotte; Rush Med. Coll., 1929	1931	1931
Wishart, Wm. E., Charlotte; N. C. Med. Coll., 1911	1911	1911
Withers, J. J., Davidson; Jeff., 1909	1909	1930
Woodruff, Julian S., Charlotte; Univ. of Md., 1920	1920	1923

MITCHELL-WATAUGA COUNTIES SOCIETY

President: C. F. Lambert, Spruce Pine; Jeff. Med. Coll., 1921	1921	1923
Secretary: C. A. Peterson, Spruce Pine; N. C. Med. Coll., 1907	1907	1908
Gouge, A. E., Bakersville; Med. Coll. of Va., 1917	1917	1920
Hagaman, J. B., Boone, 1915	1915	1915
Perry, H. B., Boone; N. C. Med. Coll., 1905	1905	1922

MONTGOMERY COUNTY SOCIETY

Name and Address	Licensed	Joined State Society
President: N. G. Nicholson, Jr., Mt. Gilead; N. C. Med. Coll., 1917	1917	1920
Secretary: Charles Daligny, Troy (Hon.); Univ. of Paris, 1878	1889	1891
Griffin, H. L., Star; Med. Coll. of Va., 1926	1926	1928
Harris, W. T., Troy; Med. Coll. of Va., 1925	1926	1927
Ingram, Charles B., Mt. Gilead (Hon.); Jeff. Med. Coll., 1886	1886	1892
McMillan, J. M., Candor; P. and S., Atlanta, 1909	1909	1911
Rankin, Pressly R., Mt. Gilead; N. C. Med. Coll., 1910	1910	1912
Shamburger, John B., Star (Hon.); Univ. of Md., 1890	1890	1892
Thompson, Alexander Frank, Troy; Med. Coll. of Indiana, 1895	1895	1904

MOORE COUNTY SOCIETY

President: H. E. Bowman, Aberdeen; N. C. Med. Coll., 1904	1904	1919
Secretary: R. G. Rosser, Vass; N. C. Med. Coll., 1909	1909	1917
Averitt, H. O., Cameron; Emory Univ., 1929	1929	1931
Blair, A. McNeil, Southern Pines; Niagara Univ., 1897	1904	1906
Blue, A. McN., Carthage; Tulane Univ., 1915	1916	1917
Chester, P. J., Southern Pines; N. C. Med. Coll., 1913	1913	1920
Dickie, J. W., Southern Pines; Jeff. Med. Coll., 1918	1920	1921
Felton, R. L., Jr., Carthage; Univ. of Pa., 1927	1927	1929
McDuffie, W. N., Hemp; Emory Univ. Sch. of Med., Atlanta, 1916	1920	1921
McLeod, A. H., Aberdeen; Balt. Med. Coll., 1896	1896	1904
McLeod, Vida C., Southern Pines; Baylor Univ. Coll. of Med., 1919	1931	1931
McLeod, W. G., Southern Pines; Baylor Univ., 1921	1926	1927
Marr, M. W., Pinehurst; Tufts Coll. Med. Sch., Boston, 1907	1909	1915
Milham, C. G., Southern Pines; Jefferson, 1927	1927	1930
Milliken, J. S., Southern Pines; Jeff. Med. Coll., 1915	1915	1916
Monroe, C. R., Pinehurst; Univ. of Md., 1924	1925	1928
Mudgett, W. C., Southern Pines; Maryland Med. Coll., 1903	1908	1911
Poate, E. M., Southern Pines; Cornell Univ. Med. Coll., 1906	1921	1931
Shields, Henry B., Carthage (Hon.); Atlanta Med. Coll., 1882	1887	1901
Street, M. E., Glendon (Hon.); P. and S., Balt., 1893	1893	1902
Symington, John, Carthage; Univ. of Md., 1902; London Sch. of Hygiene and Tropical Med., 1926	1927	1928

NEW HANOVER COUNTY SOCIETY

President: H. A. Coddington, Wilmington; Univ. of Md., 1911	1915	1917
Secretary: A. H. Elliott, Wilmington; Jeff. Med. Coll., 1919	1919	1921
Barefoot, Graham B., Wilmington; Jeff. Med. Coll., 1923	1923	1924
Bellamy, Robert H., Wilmington; Jeff. Med. Coll., 1902	1902	1902
Bullock, Ernest S., Wilmington; Univ. of Md., 1911	1911	1911
Cranmer, J. B., Wilmington; Univ. of N. C., 1905	1905	1907
Crouch, A. McR., Wilmington; Jeff. Med. Coll., 1916	1916	1918
Evans, J. E., Wilmington; Univ. of Md., 1916	1916	1916
Farthing, L. E., Wilmington; Univ. of N. C., 1906	1906	1913

Name and Address	Licensed	Joined State Society
Freeman, J. D., Wilmington; Med. Coll. of Va., 1918	1921	1922
Galloway, Walter Curtis, Wilmington (Hon.); Washington Univ., 1874	1880	1880
Green, Thomas M., Wilmington; Univ. of Md., 1901	1901	1904
Hall, James S., Wilmington; Univ. of S. Calif., 1900	1921	1924
Harriss, Andrew H., Wilmington (Hon.); Medico-Chir., Phila., 1893	1892	1894
Hoggard, J. T., Wilmington; Univ. Med. Coll., Rich., 1906	1906	1922
Hooper, Joseph W., Wilmington; Univ. of Md., 1909	1912	1919
Jewett, Robert D., Wilmington (Hon.); Univ. of Va., 1888	1890	1890
Johnson, Geo. W., Wilmington; Univ. of Pa., 1920	1920	1921
Koonce, S. Everett, Wilmington (Hon.); P. and S., Balt., 1896	1896	1900
McMillan, W. D., Wilmington (Hon.); Univ. of Md., 1869	1889*	1892
Mebane, W. C., Wilmington; N. C. Med. Coll., 1905	1905	1916
Moore, W. Houston, Wilmington; Jeff. Med. Coll., 1910	1910	1911
Murchison, D. R., Wilmington; Johns Hopkins, 1916	1922	1923
Murphy, John G., Wilmington; Univ. of Louisville, 1903	1903	1905
Nesbitt, Charles T., Wilmington; Baltimore Med. Coll., 1893	1907	1908
Powers, Frank P., Wilmington; Univ. of Pa., 1927	1927	1928
Robertson, James F., Wilmington; Univ. of Pa., 1913	1913	1916
Rodman, R. B., Wilmington; Med. Coll. of S. C., 1928	1928	1930
Rourk, M. H., Wilmington; Univ. Minn., 1929	1930	1931
Schonwald, John T., Wilmington (Hon.); Long Island Coll. Hosp., 1879	1880	1881
Sidbury, J. B., Wilmington; Columbia Univ., N. Y., 1912	1915	1916
Sloan, D. B., Wilmington; Univ. of Pa., 1914	1914	1920
Slocum, R. B., Wilmington; Johns Hopkins, 1905	1907	1907
Smith, Slade A., Wilmington; N. C. Med. Coll., 1907	1907	1921
Wessell, John C., Wilmington (Hon.); Univ. of Md., 1900	1900	1900

NORTHAMPTON COUNTY SOCIETY

President:	....	....
Secretary:	....	....
Fleetwood, Jos. A., Conway; Tulane, 1921	1921	1923
Hodge, A. R., Severn; Med. Coll. of Va., 1925	1925	1926
Lewis, H. W., Jackson (Hon.); Univ. of N. Y., 1887	1889*	1887
Sewell, Marion H., Jackson; Med. Coll. of Va.	1926	1927
Vaughn, J. C., Rich Square; Med. Coll. of Va., 1915	1915	1916

ONSLOW COUNTY SOCIETY

President: E. L. Cox, Jacksonville (Hon.); Univ. of Md., 1889	1889	1892
Secretary: W. I. Turlington, Jr., Jacksonville; Univ. of N. Y., 1929	1929	1930
Bryan, Lorenzo D., Sneads Ferry; Tulane, 1910	1910	1911
Corbett, J. P., Swansboro; Wash. Univ. School of Med., 1928	1928	1930
Henderson, John P., Jacksonville; Va. Med. Coll., 1918	1919	1921
Sutton, Carl W., Richlands; Tulane, 1905	1905	1907

* Registered.

PAMLICO COUNTY SOCIETY

Name and Address	Licensed	Joined State Society
President:	....	....
Secretary:	....	....
Daniels, O. C., Oriental; Med. Coll. of Va., 1903	1903	1916
Dees, D. A., Bayboro; Balt. Med. Coll., 1903	1903	1905
McCotter, St. Elmo, Bayboro; P. and S., Atlanta, 1908	1908	1909
Purdy, J. J., Oriental; Med. Coll. of Va., 1900	1914	1915

PASQUOTANK-CAMDEN-DARE COUNTIES SOCIETY

President:	....	....
Secretary:	....	....
Fearing, Isaiah, Elizabeth City; P. and S., Balt., 1896	1896	1904
Hoyle, Hughes B., Manteo; N. C. Med. Coll., 1896	1896	1904
Johnston, W. W., Manteo; N. C. Med. Coll., 1913	1913	1920
Kendrick, R. L., Elizabeth City; Univ. of Va., 1913	1913	1915
Lister, E. W., Elizabeth City; Med. Coll. of Va., 1896	1896	1916
Peters, W. A., Elizabeth City; Med. Coll. of Va., 1915	1915	1916
Sawyer, W. W., Elizabeth City; Univ. of Md., 1903	1903	1904
Walker, H. D., Elizabeth City (Hon.); Univ. of Md., 1902	1902	1902
Ward, I. A., Elizabeth City; Univ. of N. C., 1907	1907	1915
White, W. H. C., Elizabeth City; Univ. of Va., 1922	1929	1929
Williams, Claude B., Elizabeth City; Univ. Coll. of Med., Richmond, 1903	1903	1907

PENDER COUNTY SOCIETY

President:	....	....
Secretary:	....	....
Taylor, W. I., Burgaw; N. C. Med. Coll., 1902	1904	1905

PERSON COUNTY SOCIETY

President: B. A. Thaxton, Roxboro; Jeff. Med. Coll., 1914	1914	1916
Secretary: H. M. Beam, Roxboro; Columbia Univ., 1918	1918	1919
Gentry, Geo. W., Roxboro; Univ. of N. C., 1910	1910	1911
Love, Bedford E., Roxboro; Univ. of Md., 1904	1904	1905
Merritt, John H., Woodsdale, Rt. 1; Univ. of N. C., 1906	1907	1908
Nichols, Austin F., Roxboro; Univ. of N. C., 1908	1908	1909

PITT COUNTY SOCIETY

President: Cecil Garrenton, Bethel; Med. Coll. of Va., 1908	1908	1915
Secretary: W. M. B. Brown, Greenville; Med. Coll. of Va., 1929	1929	1931
Barrett, J. M., Greenville; Univ. of Pa., 1926	1926	1927
Basnight, Thos. G., Stokes; Univ. of Md., 1904	1905	1907
Beasley, E. B., Fountain; Univ. of Pa. School of Med., 1911	1911	1915
Crisp, S. M., Greenville; Univ. of Pa., 1923	1923	1925
Dixon, G. G., Ayden; Med. Coll. of Va., 1915	1915	1917
Frizzelle, M. T., Ayden; Univ. Coll. of Med., Richmond, 1907	1907	1909
Green, J. C., Greenville; Med. Coll. of Va., 1900	1900	1915

Name and Address	Licensed	Joined State Society
McGeachy, R. S., Greenville (Hon.); Bellevue Hosp., 1894....	1894	1895
Nobles, Jos. E., Greenville (Hon.); Jeff. Med. Coll., 1899.....	1899	1902
Pace, K. B., Greenville; Jeff. Med. Coll., 1914.....	1914	1920
Skinner, Louis Colton, Greenville; Univ. of Md., 1901.....	1901	1903
Smith, R. C., Grifton; Jeff. Med. Coll., 1923.....	1923	1926
Tyson, J. J., Ayden; Med. Coll. of Va., 1928.....	1928	1930
Watson, Thomas M., Greenville; Tulane Univ., 1919.....	1919	1920
Willis, W. M., Farmville; Med. Coll. of Va., 1914.....	1915	1924
Winstead, J. L., Greenville; Med. School of Univ. of Md., 1925	1925	....
Wooten, W. I., Greenville; Jeff. Med., 1920.....	1920	1920
Wright, R. H., Univ. of Pa.....	1929	1930

POLK COUNTY SOCIETY

President: A. J. Jervey, Tryon; Med. Coll. of S. C., 1905.....	1923	1925
Secretary: E. McQueen Salley, Saluda; Univ. of Md., 1905.....	1905	1908
Gantt, L. Rosa H., Tryon; Med. Coll. of S. C., 1901.....	1927	1932
Grady, Wm. Earle, Tryon (Hon.); Univ. of Md., and P. and S., Balt., 1894	1895	1899
Lea, J. I., Tryon; Mich. Coll. of Med. and Surg., 1906.....	1916	1925
Palmer, M. C., Tryon; Med. Coll. of S. C., 1910.....	1911	1914
Smith, D. L., Saluda and Spartanburg, S. C.; S. C. Med. Coll., 1903	1926	1927

RANDOLPH COUNTY SOCIETY

President: Charles C. Hubbard, Farmer (Hon.); Jeff. Med. Coll., 1888	1890	1900
Secretary: J. R. Johnson, Ramseur; Med. Coll. of Va., 1927....	1927	1929
Barnes, Dempsey, Asheboro; Med. Coll. of Va., 1925.....	1925	1927
Barnes, J. T., Asheboro.....	....	1932
Barnes, Tiffany, Asheboro; Med. Coll. of Va., 1925.....	1925	1927
Craven, F. C., Asheboro; Univ. of Md., 1913.....	1913	1914
Hayworth, C. A., Asheboro; Univ. of Md., 1913.....	1913	1914
Helms, T. L., Randleman; N. C. Med. Coll., 1914.....	1915	1917
Lambert, W. L., Asheboro; Jeff. Med. Coll., 1921.....	1921	1923
Redding, Alex. H., Cedar Falls (Hon.); Coll. of P. and S., Balt., 1887	1889*	1900
Soady, J. H., Asheboro; Toronto Univ., 1905.....	1924	1926
Sumner, G. H., Asheboro; Tulane Univ., 1923.....	1923	1924
Sykes, R. P., Asheboro; Tulane Med. Coll., 1929.....	1929	1932
Tate, C. S., Ramseur; Balt. Med. College, 1893.....	1896	1914

RICHMOND COUNTY SOCIETY

President: T. B. Henry, Rockingham; Columbia Univ. Coll. P. and S., N. Y., 1917.....	1920	1921
Secretary: A. C. Everett, Rockingham; Univ. of Md., 1897....	1897	1903
Bristow, C. O., Rockingham; Jeff. Med. Coll., 1918.....	1920	1921

* Registered.

Name and Address	Licensed	Joined State Society
Caddell, G. C., Hoffman; N. C. Med. Coll., 1912	1912	1930
Garrett, F. B., Rockingham; N. C. Med. Coll., 1912	1912	1914
Hatcher, M. A., Hamlet; Med. Coll. of Va., 1918	1920	1921
Howell, W. L., Ellerbe; N. C. Med. Coll., 1910	1910	1911
James, W. D., Hamlet; Jeff. Med. Coll., 1908	1908	1908
Kinsman, Henry F., Hamlet; Univ. of Vermont, 1894	1897	1904
Ledbetter, James McQ., Rockingham; Vanderbilt Univ., 1894	1894	1903
Long, Z. F., Rockingham; Univ. of Pa., 1928	1928	1930
Parsons, W. H., Ellerbe; N. C. Med. Coll., 1916	1916	1919
Sisk, C. N., Rockingham; Univ. of Nash., 1905	1922	1922
Teague, S. E., Hamlet; Tulane Univ. of La., 1921	1921	1923
Terry, Wm. Calvin, Hamlet; N. C. Med. Coll., 1911	1912	1914

ROBESON COUNTY SOCIETY

President: A. B. Holmes, Fairmont; Jeff. Med. Coll., 1910	1910	1914
Secretary: Thomas C. Johnson, Lumberton; Med. Coll. of Va., 1903	1903	1903
Baker, Horace M., Lumberton; Harvard Med. School, 1917	1919	1919
Beam, R. S., Lumberton; Jeff. Med. Coll., 1912	1912	1915
Bowman, E. L., McDonalds; Med. Coll. of Va., 1914	1914	1916
Britt, J. N., Lumberton; Atlanta Med. Coll., 1914	1923	1924
Carmichael, Thaddeus W., Rowland; Ky. Univ. Med. Dept., 1904	1911	1919
Hardin, E. R., Lumberton; Univ. of Ga., 1911	1915	1920
Hayes, A. H., Fairmont; Atlanta Med. Coll., 1917	1917	1919
Hodgin, H. H., Red Springs; Univ. of Md., 1905; N. C. Med. Coll., 1906	1906	1907
McClelland, Joseph O., Maxton; Med. Coll. of Va., 1908	1912	1913
McIntyre, Stephen, Lumberton; Jeff. Med. Coll., 1928	1928	1930
McMillan, Benj. F., Red Springs (Hon.); Univ. of Md., 1882	1884	1884
McMillan, R. D., Red Springs; Univ. of Md., 1910	1911	1912
Martin, J. A., Lumberton; Med. Coll. of Va., 1915	1915	1917
Nash, J. Fred, St. Pauls; N. C. Med. Coll., 1914	1914	1916
Pope, Henry T., Lumberton (Hon.); N. C. Med. Coll., 1894	1893	1902
Reed, D. H., Maxton; Geo. Wash. Univ., 1901	1904	1917
Ricks, Leonard E., Fairmont (Hon.); Med. Coll. of Va., 1896	1896	1913
Smith, John McNeill, Rowland; Jeff. Med. Coll., 1908	1908	1909
Stamps, Thos., Lumber Bridge (Hon.); Univ. of Louisville, 1888	1888	1890
Temple, Wade, Marietta; Univ. of Md., 1928	1928	1931

ROCKINGHAM COUNTY SOCIETY

President: P. C. Carter, Madison; Univ. of Md., 1916	1916	1920
Secretary: Paul S. Watson, Madison; Med. Coll. of S. C., 1928	1928	1928
Abernathy, Miles B., Reidsville; N. C. Med. Coll., 1906	1906	1910
Casteen, Kenan, Leaksville; Univ. of Bellevue Hosp., Med. Coll., 1918	1919	1921
Cozart, B. F., Reidsville; Med. Coll. of Va., 1931	1931	1931
Cummings, M. P., Reidsville; Jeff. Med. Coll., 1911	1911	1914
Dillard, G. P., Draper; Bennett Med. Coll., 1916	1916	1919

Name and Address	Licensed	Joined State Society
Dixon, Hubert C., Leaksville; Univ. and Bellevue Hosp. Med. Coll., 1916	1916	1921
Hester, Wm., Reidsville; Jeff., 1926	1929	1930
Jett, Samuel G., Reidsville; Univ. of the South, 1903	1908	1911
Johnson, W. A., Reidsville; N. C. Med. Coll., 1907	1909	1910
McBryde, M. H., Reidsville; Univ. Coll. of Med., Richmond, 1901	1901	1904
McGehee, John Wm., Reidsville; Univ. of Md., 1904	1904	1905
Martin, Sydnor L., Leaksville; Balt. Med. Coll., 1892	1892	1904
Matthews, Wm. W., Spray; Chicago Coll. of Med. and Surg., 1913	1915	1918
Ray, John B., Leaksville; Balt. Med. Coll., 1898	1898	1898
Ray, S. P., Leaksville; Univ. of Pa.	1929	1931
Tuttle, A. F., Spray; N. C. Med. Coll., 1901	1901	1907
Tyner, Carl V., Leaksville; Univ. and Bellevue Hosp. Med. Coll., N. Y., 1916	1916	1919
Wharton, Chas. R., Ruffin; Med. Coll. of Va., 1897	1897	1904
Wilson, N. G., Madison; N. C. Med. Coll., 1914	1914	1914

ROWAN COUNTY SOCIETY

President: Irving E. Shafer, Salisbury; N. C. Med. Coll., 1914	1914	1914
Secretary: E. D. Andrews, Salisbury; Med. Coll. of S. C., 1917	1924	1930
Armstrong, C. W., Salisbury; Univ. of Md., 1914	1914	1915
Black, O. R., Landis; N. C. Med. Coll., 1914	1914	1918
Brawley, M. H., Salisbury; N. C. Med. Coll., 1910	1912	1914
Brown, Clarence E., Salisbury; N. C. Med. Coll., 1918	1920	1921
Brown, G. A., Mt. Ulla (Hon.); Univ. Coll. of Med., 1897	1897	1898
Choate, J. W., Salisbury; N. C. Med. Coll., 1915	1915	1924
Clement, Edward B., Salisbury; Jeff. Med. Coll., 1906	1906	1913
Council, J. B., Salisbury (Hon.); P. and S., Balt., 1885	1885	1885
Eagle, J. C., Spencer; Jeff. Med. Coll., 1923	1923	1925
Flemming, Giles M., Cleveland; Emory Univ., 1919	1919	1921
Glover, F. O., Salisbury; Univ. of Pa., 1928	1931	1932
Ketchie, J. M., Salisbury; Jeff. Med., 1922	1922	1925
Lowery, J. R., Salisbury; Univ. of Md., 1904	1904	1913
McKenzie, B. W., Salisbury; Jeff. Med. Coll., 1916	1916	1920
Marsh, Frank B., Salisbury; Jeff. Med. Coll., 1919	1919	1922
Moncure, Wm., Jr.	....	....
Monk, Henry L., Salisbury; Med. Coll. of Va., 1899	1899	1903
Newman, Harold H., Salisbury; Johns Hopkins Univ., 1913	1914	1916
Peeler, John H., Salisbury; Univ. Coll. of Med., Va., 1899	1899	1904
Ramsey, Jas. G., Cleveland, Ohio; Univ. of Pa., 1922	1924	1924
Robertson, L. H., Salisbury; Univ. of Pa., 1929	1929	1931
Seay, T. W., East Spencer; Univ. of Md., 1921	1922	1924
Sigman, Frederick G., Spencer; Univ. Med. Coll. of Va., 1909	1909	1910
Slate, Wesley C., Spencer; Univ. of Tenn., 1903	1903	1913
Spencer, Frederick B., Salisbury; Univ. of N. C., 1909	1909	1911
Stokes, Jas. Ernest, Salisbury (Hon.); Univ. of Md., 1892	1900	1901

Name and Address	Licensed	Joined State Society
Summerell, E. M., China Grove (Hon.); Univ. of Pa., 1883....	1883	1883
Van Poole, C. M., Salisbury (Hon.); P. and S., Balt., 1880.....	1880	1880
Whitehead, Edward, Salisbury.....	....	1928
Whitfield, Wm. Cobb, Salisbury (Hon.); Univ. of Md., 1884...	1884	1884
Woodson, Charles W., Salisbury; Columbia Univ., P. and S., 1904.....	1905	1907

RUTHERFORD COUNTY SOCIETY

President: G. O. Moss, Cliffside, Emory Univ., 1927.....	1927	1929
Secretary: Wm. C. Bostic, Forest City; Chattanooga Med. Coll., 1899; N. C. Med. Coll., 1905.....	1905	1905
Biggs, Montgomery H., Rutherfordton; Univ. of Pa., 1897.....	1907	1908
Bostic, W. C., Jr., Forest City; Univ. of Pa., 1926.....	1926	1927
Buchanan, C. L., Union Mills; Tenn. Med. Coll., 1910.....	1910	1914
Crawford, Robt. H., Rutherfordton; Johns Hopkins, 1914.....	1920	1921
Duncan, Amos C., Forest City; N. C. Med. Coll., 1919.....	1919	1920
Glenn, C. F., Rutherfordton; Univ. of Louisville.....	1927	1928
Gold, Charles F., Rutherfordton; Univ. of N. C., 1910.....	1910	1911
Harrill, L. B., Caroleen; Chattanooga Med. Coll., 1897.....	1902	1904
Head, W. T., Campobello, R. 4, S. C.; Atlanta Coll. P. and S., 1911.....	1911	1923
Hill, A. L., Rutherfordton; Univ. of Pa.....	1930	1932
Hunt, J. F., Spindale; Univ. of Tenn., 1900.....	1900	1912
King, Robt. Rogers, Ellenboro; Med. Dept. Univ. of Ark.....	1931	1932
Lovelace, Thos. C., Henrietta; N. C. Med. Coll., 1917.....	1920	1920
Norris, Henry, Waverly Mills, S. C.; Univ. of Pa., 1897.....	1907	1908
Reid, George P., Forest City (Hon.); Univ. Coll. of Med., Va., 1895.....	1894	1899
Rucker, Adin Adam, Rutherfordton; Univ. of Md., 1908.....	1908	1909
Twitty, John C., Rutherfordton; Balt. Med. Coll., 1892.....	1892	1904
Verner, Carl Hugh, Forest City; P. and S., Atlanta, 1912.....	1923	1927
Wiseman, P. H., Avondale; Med. Coll. of Va., 1925.....	1925	1926

SAMPSON COUNTY SOCIETY

President: O. E. Underwood, Roseboro; Univ. of Med., Va., 1909	1909	1910
Secretary: J. Street Brewer, Roseboro; Jeff. Med. Coll., 1919...	1919	1921
Crumpler, Paul, Clinton; Univ. of Tenn., 1907.....	1907	1908
Kerr, John D., Clinton; Univ. of Md., 1908.....	1908	1910
Lee, J. Marshall, Newton Grove; Med. Coll. of Va., 1916.....	1920	1923
Matthews, James O., Clinton, R.F.D. (Hon.); Univ. Coll of Med., Va., 1897.....	1897	1902
Parker, O. L., Clinton; Med. Coll. of Va., 1918.....	1918	1919
Royal, D. M., Salemburg; Med. Coll. of Va.....	1926	1928
Sessoms, E. T., Roseboro; N. C. Med. Coll., 1915.....	1915	1917
Sikes, Gibson L., Salemburg (Hon.); Univ. Coll. of Med., Va., 1900.....	1900	1902
Sloan, Wm. H., Garland; Univ. of Md., 1916.....	1916	1920
Small, Victor R., Clinton; Ohio State Univ. Med. Coll., 1916...	1920	1921

Name and Address	Licensed	Joined State Society
Wilson, Robert B., Clinton; Ky. School of Med., 1889	1889	1904
Wilson, S. Glenn, Clinton; Med. Coll. of Va., 1930	1930	1932

SCOTLAND COUNTY SOCIETY

President: Evan A. Erwin, Laurinburg; Med. Coll. of S. C., 1912	1912	1913
Secretary: Marcus B. Wilkes, Laurel Hill; N. C. Med. Coll., 1912	1923	1923
Buchanan, L. T., Laurinburg; Jeff. Med. Coll., 1913	1913	1917
Gibson, John S., Gibson; Univ. of Md., 1905	1905	1907
James, Albert W., Monroe; Jeff. Med. Coll., 1918	1918	1921
James, F. P., Laurinburg; Univ. of Pa., 1916	1916	1917
John, Peter, Laurinburg; Univ. of Md., 1897	1897	1904
Livingston, Everett Alex, Gibson; Univ. of Md., 1912	1912	1913
Pate, James G., Gibson; Univ. of Pa., 1916	1916	1917
Shaw, W. G., Wagram; P. and S., Balt., 1892	1895	1904
Wilcox, J. W., Schenectady, N. Y.; Univ. of N. C., 1906	1906	1906

STANLY COUNTY SOCIETY

President: Wm. Isaac Hill, Albemarle; Univ. of Md., and P. and S., Balt., 1897	1897	1904
Secretary: J. S. Gaskin, Albemarle; Med. Coll. of S. C., 1925	1929	1931
Allen, Jos. A., New London; Univ. Coll. of Med., Va., 1901	1901	1904
Bigler, V. L., Albemarle; Univ. Pittsburgh, 1925	1926	1927
Dunlap, Lucius Victor, Albemarle; Univ. of N. C., 1909	1909	1910
Frazier, J. W., Badin; Jeff. Med. Coll., 1924	1924	1927
Gaskin, Lewis R., Albemarle; Med. Coll. of S. C., 1921	1924	1926
Gold, L. L., Oakboro; Tulane Univ., 1929	1929	1931
Hathcock, Thomas A., Norwood; Univ. of Md., 1893	1893	1904
Laton, James F., Albemarle; N. C. Med. Coll., 1904	1904	1910
Lentz, C. M., Albemarle; N. C. Med. Coll., 1909	1909	1910
Moore, D. Bain, Badin; Univ. Coll. of Med., Va., 1913	1913	1915
Shaver, W. T., Albemarle; Univ. of Md., 1918	1920	1921

STOKES COUNTY SOCIETY

President: J. L. Hanes, Pine Hall	....	1931
Secretary: C. J. Helsabeck, Walnut Cove; Univ. of Md., 1919	1919	1922
Braswell, Wm. Edgar, Sandy Ridge; Univ. of Ga., 1907	1925	1926
Helsabeck, R. S., King; N. C. Med. Coll., 1913	1913	1920
Jones, A. G., Walnut Cove (Hon.); Univ. of N. Y., 1868	1894*	1892
Stone, Grady E., King; N. C. Med. Coll., 1915	1915	1920

SURRY COUNTY SOCIETY

President:	....	....
Secretary: R. E. Smith, Mt. Airy; Univ. of Pa., 1923	1923	1926
Ashby, E. C., Mt. Airy; Univ. of Pa., 1914	1914	1916
Baird, C. A., Mt. Airy; N. C. Med. Coll., 1904	1904	1912

* Registered.

Name and Address	Licensed	Joined State Society
Flippin, J. M., Pilot Mountain; Coll. P. and S., Md., 1884.....	1893*	1926
Flippin, Samuel T., Siloam (Hon.); N. C. Med. Coll., 1898....	1898	1898
Folger, P. B., Dobson; Jeff. Med. Coll., 1922.....	1922	1924
Johnson, Harry L., Elkin; Univ. of Cinn., 1924.....	1924	1927
Lovill, Robert Jones, Mt. Airy; Univ. of Md., 1910.....	1910	1912
Martin, Moir S., Mt. Airy; Univ. Coll. of Med., Va., 1905.....	1909	1916
Mitchell, R. C., Mt. Airy; Univ. of Pa., 1919.....	1921	1923
Parks, Hugh, Elkin; Jeff. Med. Coll., 1921.....	1921	1928
Pulliam, B. E., Elkin; Jeff. Med. Coll., 1928.....	1928	1931
Royal, M. A., Elkin; P. and S., Balt., 1885.....	1889*	1913
Salmons, H. C., Elkin; N. C. Med. Coll., 1904.....	1904	1908
Smith, Jas. T., Westfield; N. C. Med. Coll., 1898.....	1899	1918
Tillotson, S. F., Pilot Mountain; N. C. Med. Coll., 1905.....	1905	1922
Woltz, John L., Mt. Airy; Sou. Med. Coll., 1897.....	1902	1904

SWAIN COUNTY SOCIETY

President:	....	....
Secretary:	....	....

TRANSYLVANIA COUNTY SOCIETY

President:	....	....
Secretary:	....	....
Wilkerson, J. B., Rosman; Memphis Hosp. Med. Coll., 1906...	1923	1925

UNION COUNTY SOCIETY

President:	....	....
Secretary: William M. Love, Monroe; N. C. Med. Coll., 1915...	1915	1919
Blair, M. P., Marshville; Med. Coll. of Va., 1895.....	1895	1895
Bolt, C. A., Marshville; Med. Coll. of S. C., 1926.....	1929	1929
Faulk, J. G., Monroe; Med. Coll. of Va., 1931.....	1931	1932
Goudelock, Jno. J., Monroe; Med. Coll. S. C., 1923.....	1924	1924
Mahoney, A. F., Monroe; Univ. Louisville, 1911.....	1923	1924
Ormand, J. W., Monroe; Univ. of Cincinnati Coll. of Med., 1926	1926	1927
Smith, G. M., Monroe; N. C. Med. Coll., 1914.....	1914	1919
Stewart, H. D., Monroe (Hon.); Univ. of Md., 1898.....	1898	1901

VANCE COUNTY SOCIETY

President: H. H. Bass, Jr., Henderson, Univ. of Pa.....	1929	1930
Secretary: J. H. Wheeler, Henderson; Jeff. Med. Coll., 1918....	1918	1920
Fenner, Edwin F., Henderson; Univ. of Md., 1905.....	1906	1908
Harris, Fletcher R., Henderson (Hon.); Univ. of Va., 1881.....	1883	1883
Newcombe, A. P., Henderson; Jeff. Med. Coll., 1922.....	1922	1924
Newell, H. A., Henderson; P. and S., Balt., 1906.....	1906	1906
Royster, Thomas S., Henderson; Univ. of Pa., 1916.....	1916	1924

* Registered.

WAKE COUNTY SOCIETY

Name and Address	Licensed	Joined State Society
President: R. B. Wilkins, Raleigh; N. C. Med. Coll., 1913.....	1913	1915
Secretary: V. S. Caviness, Raleigh; Jeff. Med. Coll., 1921.....	1921	1925
Abernethy, Claude O., Raleigh; Univ. of N. C., 1906.....	1906	1907
Anderson, Albert, Raleigh (Hon.); Univ. of Va., 1888.....	1889	1890
Ashby, J. W., Raleigh; Univ. of Md., 1905.....	1921	1922
Barbee, G. S., Zebulon; Univ. of N. C., 1910.....	1910	1912
Bell, Carl W., Raleigh; Coll. of P. and S., Balt., 1914.....	1915	1916
Buffaloe, J. S., Garner; Balt. Med. Coll., 1900.....	1900	1904
Bugg, C. R., Raleigh; Johns Hopkins Med. Sch., 1922.....	1924	1925
Bulla, A. C., Raleigh; N. C. Med. Coll., 1915.....	1915	1918
Burt, B. W., Holly Springs; P. and S., Balt., 1886.....	1886	1904
Byrd, W. C., Morrisville; Jeff. Med. Coll., 1923.....	1923	1924
Campbell, Alton C., Raleigh; Univ. of N. C., 1910.....	1910	1912
Carpenter, Coy C., Wake Forest; Syracuse Univ., 1924.....	1924	1927
Carroll, E. D. Dixon, Raleigh (Hon.); Women's Med. Coll., N. Y., 1895.....	1900	1900
Caviness, Zebulon M., Raleigh; Univ. of N. C., 1903.....	1903	1903
Cheek, C. E., Fuquay Springs; Univ. Coll. of Med., Va., 1912...	1912	1914
Combs, Jos. J., Raleigh; Columbia Univ. of C. and P., 1926.....	1926	1929
Cooper, G. M., Raleigh; Univ. Coll. of Med., Richmond, 1905...	1905	1906
Cozart, W. S., Fuquay Springs; Med. Coll. of Va., Rich., 1914..	1914	1917
Dewar, Wm. B., Raleigh; Univ. of Pa., 1920.....	1920	1923
Edwards, C. J., Raleigh; Med. Coll. of Va., 1917.....	1921	1923
Eldridge, Chas. P., Raleigh; Univ. of Pa., 1926.....	1926	1927
Finch, O. E., Raleigh; Jeff. Med. Coll., 1915.....	1915	1917
Flowers, C. E., Zebulon; Med. Coll. of Va., 1913.....	1915	1916
Flowers, Clarence A., Wendell; P. and S., Balt., 1905.....	1907	1910
Fox, P. G., Raleigh; Med. Coll. of Va., 1922.....	1923	1929
Freeman, R. H., Raleigh; Jeff. Med. Coll., 1908.....	1908	1919
Gibson, M. R., Raleigh; Univ. of Md., 1905.....	1905	1914
Goodwin, A. W., Raleigh (Hon.); Bellevue Hosp. Med. Coll., 1887.....	1887	1887
Goodwin, O. S., Apex; Jeff. Med. Coll., 1923.....	1923	1926
Hamilton, John H., Raleigh; Med. Sch. of Harvard, 1916.....	1926	1926
Harris, J. H., Raleigh; Jeff. Med. Coll., 1914.....	1914	1930
Haywood, Hubert B., Jr., Raleigh; Univ. of Pa., 1909.....	1909	1910
Hicks, V. M., Raleigh; Jeff. Med. Coll., 1918.....	1918	1921
Hill, M. D., Smithfield.....	....	....
Horton, M. C., Raleigh; Univ. Coll. of Med., Va., 1903.....	1911	1911
Horton, W. C., Raleigh; P. and S., Balt., 1897.....	1896	1904
Hunter, J. P., Cary; Jeff. Med. Coll., 1919.....	1919	1921
Jenkins, Charles L., Raleigh (Hon.); N. Y. Univ. Med. Coll., 1890.....	1890	1894
Jones, Carey C., Apex; Jeff. Med. Coll., 1920.....	1920	1923
Jordan, Thos. M., Raleigh (Hon.); P. and S., Balt., 1881.....	1881	1882
Judd, Eugene C., Raleigh; Univ. of Pa., 1911.....	1911	1912
Judd, James M., Varina (Hon.); Balt. Med. Coll., 1897.....	1897	1901

Name and Address	Licensed	Joined State Society
King, E. S., Wake Forest; Jeff. Med. Coll., 1927	1927	1930
Kitchin, Thurman D., Wake Forest; Jeff. Med. Coll., 1908	1908	1908
Knox, Augustus W., Raleigh (Hon.); Bellevue Hosp. Med. Coll., 1874	1878	1880
Lacy, Thomas A., State Hospital, Raleigh; Emory Univ., 1927	1927	1928
Lamm, Isaac W., Raleigh (Hon.); Univ. Coll. of Med., Va., 1899	1899	1900
Lane, Bessie, Raleigh; Women's Med. Coll. of Pa., 1921	1921	1926
Lawrence, B. J., Raleigh; Jeff. Med. Coll., 1918	1918	1920
McDowell, F. C., Zebulon; Univ. of Pa., 1902	1913	1916
McGee, James Wm., Raleigh (Hon.); Bellevue Hosp. Med. Coll., 1888	1888	1888
McKee, John S., Raleigh; Univ. of Md., 1907	1908	1909
Mackie, Geo. C., Wake Forest; Univ. of Pa., 1928	1928	1932
Mitchener, J. S., Raleigh; Johns Hopkins Univ., 1915	1915	1918
Neal, Kemp P., Raleigh; Harvard, 1917	1920	1921
Neal, Paul N., Raleigh; Harvard, 1919	1920	1921
Noble, R. P., Raleigh; Univ. of N. C., 1907	1907	1916
Owen, J. F., Dix Hill, Raleigh; Jeff. Med. Coll.	1920	1927
Parrott, Jas. M., Raleigh (Hon.); Tulane Univ., 1895	1895	1896
Procter, I. M., Raleigh; Univ. of N. C., 1913; Univ. of Pa., 1915	1915	1917
Rand, E. G., Raleigh; Univ. of Pa., 1926	1926	1929
Ray, O. L., Raleigh, Rt. 1; Univ. Coll. of Med., Richmond, 1899	1899	1904
Rogers, Jas. Rufus, Raleigh; P. and S., Balt., 1886	1886	1904
Root, Aldert S., Raleigh; Univ. of Pa., 1911	1911	1913
Royster, Hubert A., Raleigh (Hon.); Univ. of Pa., 1894	1894	1895
Shore, Clarence A., Raleigh; Johns Hopkins, 1908	1909	1909
Smith, Sidney, Prof. Bldg., Raleigh; Tulane Univ., 1925	1925	1930
Smith, W. G., Wendell; Med. Coll. of Va.	1926	1928
Stimpson, R. T., Raleigh; Univ. of Pa., 1927	1927	1929
Templeton, James McP., Cary; Balt. Med. Coll., 1882	1882	1893
Thompson, Hugh A., Raleigh; Univ. of Pa., 1914	1914	1917
Turner, H. G., Raleigh; Univ. of Pa., 1906	1907	1925
Vann, H. M., Wake Forest; Jeff. Med. Coll., 1917	1920	1923
Ward, W. T., Raleigh; Univ. of Md., 1925	1925	1927
Watson, John B., Raleigh; Univ. of N. C., 1908	1908	1909
Weathers, R. R., Knightdale; Richmond Med. Coll.	1926	1928
West, Louis N., Raleigh; Jeff. Med. Coll., 1912	1912	1915
Wilkerson, Charles B., Raleigh; Univ. of N. C., 1906	1906	1908
Wilkinson, C. T., Wake Forest; Tulane Univ., 1922	1922	1923
Wilkinson, R. W., Jr., Wake Forest; Tulane Univ., 1922	1923	1924
Winston, P. H., State Hospital, Raleigh; Med. School of Va., 1929	1929	1930
Wright, J. B., Raleigh (Hon.); Univ. Coll. of Med., Va., 1899	1899	1900
Yarborough, Frank R., Cary; University of Penn., 1923	1925	1926
Ziegler, M. V., Raleigh; Univ. of Md., 1915	....	1932

WARREN COUNTY SOCIETY

Name and Address	Licensed	Joined State Society
President: W. D. Rodgers, Jr., Warrenton; Jeff. Med. Coll., 1913	1913	1915
Secretary: G. H. Macon, Warrenton; Univ. Coll. of Med., Va., 1910	1910	1911
Foster, H. H., Norlina; Jeff. Med. Coll., 1919	1919	1923
Holt, T. J., Warrenton; Med. Coll. of Va., 1904	1904	1911
Hunter, Frank P., Warrenton; Univ. of Va., 1925	1925	1927
Peete, C. H., Warrenton; Univ. of Pa., 1903	1906	1911

WASHINGTON-TYRRELL COUNTIES SOCIETY

President:	....	....
Secretary:	....	....
Bray, T. L., Plymouth; Univ. of Md., 1916	1916	1919
Harrell, W. H., Creswell; Jeff. of Pa., 1925	1925	1926
McGowan, Claudius, Plymouth; Med. Coll. of Va., 1917	1917	1922

WAYNE COUNTY SOCIETY

President: Wm. H. Smith, Goldsboro; Univ. of Pa., 1906	1907	1912
Secretary: M. E. Bizzell, Goldsboro; Tulane Univ., 1923	1923	1925
Benton, Geo. Ruffin, Fremont; Med. Coll. of Va., 1901	1905	1904
Best, D. E. Goldsboro; Univ. of Md., 1924	1924	1926
Cobb, Donnell B., Goldsboro; Univ. of Pa., 1921	1921	1926
Cobb, W. H., Jr., Goldsboro (Hon.); Jeff. Med. Coll., 1889	1889	1890
Crawford, W. J., Goldsboro; Med. Coll. of Va., 1922	1922	1923
Dale, G. C., Goldsboro; Univ. of Pa., 1925	1925	1927
Ham, Clem, Goldsboro; Med. Coll. of S. C., 1926	1929	1930
Henderson, C. C., Mt. Olive; Univ. of Md., 1914	1914	1919
Hollingsworth, E. T., Goldsboro; N. C. Med. Coll., 1912	1912	1915
Hollowell, C. V., Goldsboro; Med. Coll. of Va., 1928	1928	1932
Howard, C. E., Goldsboro; Univ. of Pa., 1925	1925	1927
Ivey, H. B., Goldsboro; Univ. Coll. of Med., Richmond, 1911	1911	1917
Knox, J. C., Goldsboro; Univ. of Md., 1924	1924	1932
Linville, W. C., Goldsboro; Univ. of Md., 1903	1903	1923
Lister, J. L., Mt. Olive; Med. Coll. of Va., 1896	1896	1909
Miller, Robert B., Goldsboro; Med. Coll. of Va., 1898	1900	1902
Moore, J. E. Mount Olive; Tenn. Med. Coll., 1900	1898	1918
Person, Edgar Cooper, Pikeville; Med. Coll. of Va., 1905	1905	1908
Rand, C. H., Fremont; Univ. of Pa	1926	1928
Register, F. M., Goldsboro; Ky. School of Med., 1893	1891	1904
Rose, David J., Goldsboro; Tulane Univ., 1922	1922	1924
Rose, James, Pikesville	....	1931
Smith, R. A., Goldsboro (Hon.); Bellevue Hospital, 1882	1882	1887
Strosnider, Charles F., Goldsboro; Univ. of Md., 1909	1910	1913
Sutton, William G., Seven Springs; Jeff. Med. Coll., 1889	1889	1896
Tucker, E. V., Goldsboro; Med. Coll. of Va., 1930	1930	1932
Warrick, L. A., Goldsboro; Geo. Washington Univ., 1923	1923	1924
Whelpley, Frank L., Goldsboro; Missouri Univ., 1902	1918	1918
Wilkins, J. W., Mount Olive; Med. Coll. of Va., 1913	1913	1917
Woodard, A. G., Goldsboro; Univ. of N. C., 1907	1907	1909

WILKES COUNTY SOCIETY

Name and Address	Licensed	Joined State Society
President: James H. McNeill, North Wilkesboro; Geo. Wash. Univ. Med. School, 1926	1926	1927
Secretary: Harold Benj. Smith, North Wilkesboro; Med. Coll. of S. C.	1929	1930
Brandon, W. O., North Wilkesboro; Med. Coll. of Va., 1928	1928	1932
Eller, Albert J., Readybranch; P. and S., Balt., 1893	1895	1898
Gilreath, Frank H., N. Wilkesboro (Hon.); Univ. of Nashville, 1898	1898	1898
Hubbard, Fred C., North Wilkesboro; Jeff. Med. Coll., 1918	1919	1921
Hutchens, E. M., North Wilkesboro; N. C. Med. Coll., 1896	1896	1904
Sink, C. S., North Wilkesboro; N. C. Med. Coll., 1912	1912	1913
Somers, L. P., New Castle; Univ. of Md., 1897	1889*	1904
Triplett, W. R., Purlear; N. C. Med. Coll., 1914	1915	1920

WILSON COUNTY SOCIETY

President: T. J. Blackshear, Wilson; Emory Univ., 1914	1923	1924
Secretary: W. C. Hunter, Wilson; Univ. of Pa., 1928	1928	1931
Anderson, Wade H., Wilson; Univ. of Va., 1902	1904	1904
Bell, G. E., Wilson; Jeff. Med. Coll., 1921	1921	1922
Best, Henry B., Wilson; Univ. of N. C., 1907	1907	1908
Bradshaw, T. G., Wilson; Med. Coll. of Va., 1909	1924	1924
Dickinson, Elijah T., Wilson (Hon.); Med. Coll. of Va., 1895	1895	1900
Eagles, Charles S., Saratoga; Univ. of N. C., 1909	1909	1910
Grady, Leland V., Wilson, Rt. 2; N. C. Med. Coll., 1913	1913	1914
Hackney, Ben. H., Lucama; Tulane Univ., 1911	1911	1913
Lane, P. P., Wilson; Univ. of Md., 1908	1908	1920
Lewis, Geo. W., Wilson (Hon.); Univ. of Md., 1886	1885	1894
McClees, E. C., Elm City; Med. Coll. of Va., 1917	1920	1920
Mitchell, G. W., Wilson; Univ. Coll. of Med., Va., 1913	1913	1920
Moore, Chas. E., Wilson (Hon.); Bellevue Hosp. Med. Coll., 1875	1875	1875
Pittman, M. A., Wilson; Jeff. Med. Coll., 1921	1924	1923
Putney, R. H., Elm City; Med. Coll. of Va., 1914	1914	1920
Saliba, Michael M., Wilson; Balt. Med. Coll., 1897	1910	1910
Smith, A. Jones, Black Creek; Univ. of Pa., 1921	1921	1923
Strickland, Ernest L., Wilson; Med. Coll. of Va., 1916	1916	1917
Woodard, C. A., Wilson; Univ. of Va., 1904	1904	1920
Woodard, G. B., Wilson; Med. Coll. of Va., 1915	1915	1916

YADKIN COUNTY SOCIETY

President: L. S. Hall, Yadkinville	....	....
Secretary: N. W. Mackie, Yadkinville; Wash. Univ., 1928	1928	1929
Bryant, Charles G., Jonesville; Louisville Med. Coll., 1894	1903	1904
Leak, Wharton, G., East Bend; N. C. Med. Coll., 1900	1899	1904

YANCEY COUNTY SOCIETY

Name and Address	Licensed	Joined State Society
President:	....	....
Secretary:	....	....
Peek, W. A., Ramseytown; non-graduate	1905*	1919

* Registered.

INDEX

A

PAGE

Abernethy, Dr. Claude O. 250
Address of President 75-79
Address of Dr. Wm. H. Welch on Doctor Robert Koch,
(Phonograph Recording) 80
Advisory Committee to Women's Auxiliary, Appointment of 81
Alexander, Dr. J. R. 190
Allen, Dr. Charles I. 263, 276, 461
Alphabetical List of Fellows for 1932 with P. O. Addresses 611-627
Asbill, Dr. David S. 379
Ashe, Dr. J. R. 308
Award of Moore County Medical Society Medal 80
Away with State Medicine—*Dr. C. V. Reynolds* 95-101

B

Bagby, Dr. B. B. 600
Banner, Dr. Chas. W. 383
Bittinger, Dr. S. M. 392
Bizzell, Dr. 366
Blair, Dr. A. McNiel 114
Board of Health, Members of, from 1877 to 1931 X
Bonner, Dr. K. P. B. 140
Bost, Dr. T. C. 231
Bradford, Dr. W. S. 438, 452
Branch, Dr. E. A. 592
Brenizer, Dr. Addison G. 50, 54, 230, 255
Brewer, Dr. J. S. 454
Britt, Dr. T. C. 557
Broadway, Dr. R. E. 609
Buchner, Dr. Reade 330
Buie, Dr. Roderick M. 587
Bulla, Dr. A. C. 609
Burrus, Dr. J. T. 196, 213

C

Carlton, Dr. R. L. 74, 82, 168, 546
Chairmen of Sections XVIII
Committee on Publications II
Committees of the Society, List of XIX
Conjoint Session of the Medical Society and the State Board of Health 196-214
Annual Report of the State Board of Health 198-210
Discussion by:
Dr. W. S. Rankin 210
Dr. T. W. M. Long 212

Dr. J. M. Templeton..... 213
Dr. D. A. Garrison..... 213
Dr. J. T. Burrus..... 213
Cobb, Dr. D. B..... 411
Cole, Dr. W. F..... 315
Cook, Dr. H. L..... 390
Cooke, Dr. G. C..... 232
Coombs, Dr. Fielding.....331, 374
Cooper, Dr. G. M.....497, 592
Councillors of the Society.....XVIII
Craig, Dr. S. Douglas..... 400
Crawford, Dr. Robert H..... 468
Crowell, Dr. L. A..... 140

D

Daniel, Dr. N. C..... 308
Davis, Dr. R. V..... 46
Davis, Dr. Stephen W.....222, 420
Deceased Members, List of.....115-116
Delegates to the American Medical Association.....XVIII
Delegates to the Medical Society of Virginia..... XIX
Delegates to the South Carolina Medical Society..... XIX
Delegates to the State Dental Association..... XIX
Dewar, Dr. Wm. B..... 431
Diverticula of the Duodenum—*Dr. B. E. Rhudy*.....173-175
Dixon, Dr. Grady G., Elected to State Board of Health..... 25
Dixon, Dr. Grady G..... 140
Dixon, Dr. W. H..... 432
Doctors Licensed by Endorsement June 15, 1931, List of..... 181
Doctors Licensed by Examination July 6, 1931, List of.....177-180
Donnelly, Dr. John..... 502

E

Eagle, Dr. W. W..... 385
Easom, Dr. H. F..... 559
Election of Members to State Board of Health..... 140
Election of Members to State Board of Medical Examiners..... 157
Epperson, Dr. J. H.....531, 554, 595, 608
Ervin, Dr. C. E..... 413
Examiners, Members of Various Boards..... VIII

F

Fee Schedule, Workmen's Compensation Act.....14-21
Fellows for 1932, Alphabetical List, with P. O. Addresses.....611-627
Fellows for 1932, Roster, by Counties.....628-668
Ferguson, Dr. R. T.....461-468
Fox, Dr. N. A..... 308
Freeman, Mrs. Walter Jackson..... 523
Funk, Dr. Elmer H..... 92

G

Gaul, Dr. J. S. 184
Garrison, Dr. D. A. 53, 213
Geddie, Dr. Kenneth B. 299
General Sessions
First General Session 74-105
Second General Session 106-139
Third General Session 140-141
Fourth General Session 141-193
Fifth General Session 193-195
General Sessions, Program of 66-73
Gibson, Dr. M. R. 371
Griffith, Dr. F. Webb 165, 462
Gynecology, A Few Fallacies in—*Dr. F. Webb Griffith* 165-168

H

Hamblen, Dr. E. C. 435-462
Hamilton, Dr. J. H. 549
Hand, The—*Dr. J. S. Gaul* 184-190
Harden, Dr. E. R. 539
Hart, Dr. V. K. 341-378
Hiatt, Dr. H. B. 56
Hicks, Dr. V. M. 45, 54, 60, 63, 65, 157, 357, 384, 389
History of the Society
From Organization to 1804 III
From 1849 to 1931 IV
Hoggard, Dr. J. T. 183
Holmes, Dr. A. Byron 101
Honorary Fellows XIV
Honorary Members XVII
Hospitalization and Treatment of Veterans—*Dr. A. Byron Holmes* 101-104
Discussion by:
Dr. John G. Myers 105
House of Delegates 1-65
Annual Report of the Secretary-Treasurer 4-8
Chairman Committee on Arrangements, Next Meeting 62
Executive Committee Meetings, Minutes of
June 12, 1931 21-25
July 22, 1931 25-27
January 9, 1932 28-31
April 18, 1932 31-35
Financial Statement 9-13
Medical and Hospital Fee Schedule 14-21
Nominating Committee 58
Place of Next Meeting 62
President's Message 3-4
Report of Committee on Legislation and Public Policy 38-40
Report of Committee on Printing and Supplies 48
Report of Committee on Program 23
Reports of Councillors 46-48

First District 46
Second District 46
Third District 47
Fourth District 47
Fifth District 47
Sixth District 47, 51
Seventh District 47, 50
Eighth District 47
Ninth District 48
Tenth District 48
Report of Nominating Committee.....61-62
Report of Committee on President's Message..... 61
Report of Committee on Secretary-Treasurer's Report.....58-60
Roll Call 1-3
Hudson, Dr. C. C.....470, 591, 596

I

Ivey, Dr. H. B..... 407

J

Johnson, Dr. George.....439-464
Judd, Dr. E. Starr.....35, 83, 278, 519

K

Kennedy, Dr. John P..... 230
Kimmel, Dr. Arden..... 413
Knox, Dr. J. C..... 334
Koch, Dr. Robert, Address on..... 80
Kutscher, Dr. G. W., Jr..... 317

L

Lawrence, Dr. B. J.....38, 64
Legislative Committees of State Societies: The Business of the Practice of Medicine—*Dr. E. Starr Judd*.....35-38
Liability Insurance, Rates..... 22
List of Fellows, Honorary.....XIV
List of Members Elected to State Board of Medical Examiners..... 184
London, Dr. Arthur, Jr..... 329
Long, Dr. T. W. M.....56, 212
Lyday, Dr. R. O..... 236

Mc

McBrayer, Dr. L. B.....4, 80, 82, 470
McBryde, Dr. A. M..... 324
McCain, Dr. P. P.....60, 63, 502, 566
McCall, Dr. A. C..... 374
McClung, Dr. J. A..... 106
McConnell, Dr. H. R..... 390
McGeachy, Dr. R. S.....540, 558, 584, 609

McKay, Dr. Robert W. 249
McKnight, Dr. R. B. 82, 250
McNeil, Dr. James H. 307
MacNider, Dr. Wm. deB. 406, 418, 427

M

Manning, Dr. I. H. 407-421
Matheson, Dr. James P. 371
Medical Examiners, Boards of VIII
Medical Examiners, Election of Four Members 157
Medical Examiners, Election of Three Members 184
Medical Examiners, Report of 176
Members Elected to State Board of Medical Examiners, List of 184
Membership by Counties, 1918-1932 XII
Memorial Address—*Dr. A. McNiel Blair* 114-115
Modern Trends in the Treatment of Tuberculosis—*Dr. Paul H. Ringer* 158-165
Moore County Medical Society Medal, Presentation of 80
Moore, Dr. Houston 112, 308
Moore, Dr. Julian A. 260
Moore, Dr. Oren 441- 451
Morris, Dr. G. B. 496
Morris, Dr. J. A. 541, 557
Moseley, Dr. Z. V. 536
Murchison, Dr. D. R. 217
Murphy, Dr. John G. 45, 390
Myers, Dr. John Q. 105

N

Next Meeting, Place of 62
Nominations for the State Board of Medical Examiners 140
Norman, Dr. J. S. 377
Northington, Dr. J. M. 141

O

Obituaries, Report of Committee on 113-139
Officers of the Society 1931-33 XVIII
Officers of the Woman's Auxiliary 507-508

P

Parrott, Dr. James M. 583, 596
Past President's Jewel, Presentation of—*Dr. John B. Wright* 79
Pepper, Dr. O. H. Perry 149
Perry, Dr. D. R. 92, 563, 576
Perry, Dr. Robert E. 489
Perry, Dr. Vance P. 378-388
Physician and the Public, The—*Dr. E. Starr Judd* 83-92
Place of Next Meeting 62
Preservation of the Health of Our Youth from the Dentist's Standpoint—*Dr. J. A. McClung* 106-111

Discussion by:
Dr. Houston Moore 112
President's Address 75-79
Procter, Dr. Ivan 454, 462, 469
Program of General Sessions 66-73

R

Radiotherapeutic Abortion—With Report of Cases—*Dr. J. P. Rousseau* ... 142-148
Rainey, Dr. W. T. 428
Rankin, Dr. W. S. 210
Ranson, Dr. J. L. 453
Ravenel, Dr. Samuel F. 287
Ray, Dr. F. L. 542
Register, Dr. F. M. 544
Report of the Board of Medical Examiners April 1931-April 1932 176
Report of Case of General Paresis Treated by Therapeutic Fever Produced by High Frequency Current—*Dr. J. R. Alexander* 190-193
Report of the President of the State Board of Health 196-197
Report of Tellers:
First Ballot for Seven Members to the Board of Medical Examiners 157
Second Ballot for Three Members 168
Third Ballot for Three Members 175
Fourth Ballot for Three Members 183
Fifth Ballot for Three Members 184
Reynolds, Dr. C. V. 95
Rhudy, Dr. B. E. 173, 237
Riley, Dr. Wm. D. 578
Ringer, Dr. Paul H. 158
Robertson, Dr. J. F. 217, 223
Robertson, Dr. J. M. 276
Ross, Dr. R. A. 434, 440, 447, 469
Roster of Fellows for 1932 by Counties 628-666
Rousseau, Dr. J. P. 142
Royster, Dr. H. A. 229

S

Sasser, Dr. T. J. 317
Serum Reactions—*Dr. C. A. Shore* 169-173
Scientific Sections 215-506
Section on Eye, Ear, Nose and Throat 341-388
Acute Purulent Endogenous Endophthalmitis in the Absence of an Acute Systemic Infection—*Dr. David S. Asbill* 379-383
Discussion by:
Dr. C. W. Banner 383
Dr. V. M. Hicks 384
Allergic Conditions in Rhinolaryngology—*Dr. Bizzell* 366-371
Discussion by:
Dr. M. R. Gibson 371
Dr. James P. Matheson 371
Endoscopy and Pathology of the Respiratory Tract—*Dr. V. K. Hart* 341-356
Laryngeal Diphtheria—*Dr. W. W. Eagle* 385-388

Legal Aspects of Ophthalmology and Oto-Laryngology Referring Only to Malpractice Suits—*Dr. V. M. Hicks* 357-366
Radical Frontal Operation, The—*Dr. Fielding Coombs* 374-377
Discussion by:
Dr. J. S. Norman 377
Dr. C. C. Swan 377
Dr. V. K. Hart 378
Dr. Vance P. Perry 378
Routine Diagnosis Procedure in Oto-Laryngology—*Dr. C. C. Swan* 372-374
Discussion by:
Dr. A. C. McCall 374
Section on Gynecology and Obstetrics 433-468
Clinical Importance of the Female Sex Hormones—*Dr. E. C. Hamblen* 435-438
Discussion by:
Dr. W. S. Bradford 438
Dr. George Johnson 439
Dr. R. A. Ross 440
Dr. Oren Moore 441
Etiology-Pathology and Treatment of Uterine Hemorrhage—*Dr. R. T. Ferguson* 457-461
Discussion by:
Dr. Moir S. Martin 461
Dr. Chas. I. Allen 461
Dr. F. Webb Griffith 462
Dr. E. C. Hamblen 462
Dr. Ivan Procter 462
Kraurosis Vulvae—*Dr. George Johnson* 464-468
Discussion by:
Dr. Robert H. Crawford 468
Dr. Robert T. Ferguson 468
Mechanism, Diagnosis, and Management of Occipito-Posterior Positions of the Vertex—*Dr. R. A. Ross* 447-451
Discussion by:
Dr. Oren Moore 451
Dr. W. S. Bradford 452
Dr. J. L. Ranson 453
Dr. R. W. Spicer 453
Dr. J. S. Brewer 454
Dr. Ivan Procter 454
Resolution Regarding Postnatal Care 433
Discussion by:
Dr. R. A. Ross 434
Section on Pediatrics 287-340
Body Mechanics of the Child, The—*Dr. A. R. Shands, Jr.*.....310-315
Discussion by:
Dr. W. F. Cole 315
Dr. Thomas J. Sasser 317
Consideration of Purpura, A—*Dr. Samuel F. Ravenel* 287-299
Diabetic Gangrene of the Nasal Septum—Report of a Case—*Drs. C. A. Street and F. Coombs* 331-334

Few Facts Concerning Some Common Eye Conditions in Children, A—*Dr. Frank C. Smith* 337-340
Intracranial Hemorrhage—*Dr. G. W. Kutscher, Jr.* 317-322
Discussion by:
Dr. J. Buren Sidbury 322
Serum Reactions—*Dr. Kenneth B. Geddie* 299-306
Discussion by:
Dr. T. M. Watson 306
Treatment of Epilepsy—*Dr. A. M. McBryde* 324-329
Discussion by:
Dr. Arthur London, Jr. 329
Dr. Reade Buchner 330
Vomiting as the Chief Complaint in Infancy and Early Childhood—*Dr. J. C. Knox* 334-336
Section on Practice of Medicine 392-431
Brief Discussion with Presentation of Several Types of Diseased Lymphatic Glands Which We Had at the State Sanatorium—*Dr. S. M. Bittinger* 392-400
Contributions of Biological Chemistry to Clinical Medicine—*Dr. I. H. Manning* 421-425
Discussion by:
Dr. Claiborne Smith 425
Dr. Wm. deB. MacNider 427
Hypothyroidism—*Dr. W. T. Rainey* 428-431
Iodized Table Salt, Its Common Use and Results—*Dr. S. Douglas Craig* 400-406
Discussion by:
Dr. Wm. deB. MacNider 406
Dr. I. H. Manning 407
Dr. W. DeK. Wylie 407
Maintenance of Protein Balance in Nephritis—*Drs. C. E. Ervin and Arden Kimmel* 413-418
Discussion by:
Dr. Wm. deB. MacNider 418
Dr. S. W. Davidson 420
Some Aspects of Cholecystography—*Dr. H. B. Ivey* 407-411
Discussion by:
Dr. D. B. Cobb 411
Dr. J. R. Shull 412
Section on Public Health and Education 470-504
Anthrax—Report of a Human Case—*Dr. Robert E. Perry* 489-491
County Anti-Tuberculosis Program—*Dr. P. A. Yoder* 499-502
Discussion by:
Dr. John Donnelly 502
Dr. P. P. McCain 504
Dr. J. L. Spruill 504
Essentials of a Syphilis Control Program in the Health Department—*Dr. M. V. Ziegler* 491-496
Discussion by:
Dr. G. B. Morris 496
Dr. G. M. Cooper 497

Study of the Facts Regarding Death Rate from Tuberculosis Between the Ages of 19 and 40—*Dr. L. B. McBrayer* 470-488
Discussion by:
Dr. David T. Smith 488
Section on Surgery 217-286
An Improved Splint for Treating Fractures of the Lower Extremity —Showing Reduction and Skeletal Distraction Attachments— *Dr. Charles I. Allen* 263-275
Discussion by:
Dr. Alfred R. Shands, Jr. 276
Dr. J. M. Robertson 276
Diabetes—From the Surgical Standpoint—*Drs. J. F. Robertson and D. R. Murchison*.....217-221
Discussion by:
Dr. W. H. Sprunt, Jr. 222
Dr. Stephen W. Davis 222
Dr. J. F. Robertson 223
Electrosurgery and its Clinical Application—*Dr. Julian A. Moore* 260-263
Importance of the Recognition of the Patency of the Duodenum in all Operations on the Stomach—*Dr. A. G. Brenizer* 255-259
Penetrating Wounds of the Abdomen Received from Pistol, Rifle, and Shotgun Missiles, Reporting Sixty-three Cases— *Dr. Byrd C. Willis* 223-229
Discussion by:
Dr. H. A. Royster 229
Dr. John P. Kennedy 230
Dr. A. G. Brenizer 230
Dr. T. C. Bost 231
Relation of Radiology to Surgery, The—*Dr. G. C. Cooke* 232-236
Discussion by:
Dr. R. O. Lyday 236
Dr. B. E. Rhudy 237
Surgery of the Biliary Tract—*Dr. E. Starr Judd* 278-286
Surgical Standardization—*Dr. R. V. McKnight* 250-254
Vaginal Uretero-Lithotomy—*Dr. Donnell B. Cobb* 237-249
Discussion by:
Dr. Robert W. McKay 249
Dr. Claude O. Abernethy 250
Shands, Dr. Alfred R., Jr.....276, 310
Shore, Dr. C. A. 169
Shull, Dr. J. R. 412
Sidbury, Dr. J. Buren 322
Sisk, Dr. C. M. 575, 584, 609
Smith, Dr. Claiborne T. 425, 432
Smith, Dr. Frank C. 337
Smith, Dr. Wm. H. 148
Spicer, Dr. R. W. 453
Spruill, Dr. J. L. 504
Sprunt, Dr. W. H., Jr. 222

State Board of Health, Election of Member of 140
State Board of Health, Members from 1877 to 1931 X
Stevens, Dr. M. L. 1, 3, 4, 80, 515
Street, Dr. C. A. 307, 309, 331
Swan, Dr. C. C. 372, 377
Symington, Dr. J. 542, 549, 568

T

Taylor, Dr. F. R. 432
Tellers of Election, Appointment of 141
Templeton, Dr. J. M. 213
Transactions of the North Carolina Public Health Association 529-610
Case of Epispadias—*Dr. J. Symington* 568-570
Certain Phases of Child Health Work in Virginia—*Dr. B. B. Bagby* ..600-608
Childhood Tuberculosis in Durham County—*Dr. H. F. Eason* 559-563
Discussion by:
Dr. D. R. Perry 563
Dr. P. P. McCain 566
Greetings from the N. C. Conference for Social Service—
—*Mrs. W. B. Waddill* 592-594
Importance of Syphilis as a Public Health Problem and the Basic Element of a Syphilis Control Program—*Dr. W. D. Riley* 578-583
Discussion by:
Dr. James M. Parrott 583
Dr. C. M. Sisk 584
Dr. R. S. McGeachy 584
Dr. Roderick M. Buie 587
Intestinal Vincent's Angina.....571-575
Discussion by:
Dr. C. M. Sisk 575
Dr. D. R. Perry 576
Monday Morning Session 531-558
Monday Afternoon Session 558-596
Monday Evening Session.....596-610
Necessity of Having Certificates for Domestic Servants—
Dr. Z. V. Moseley 436-539
Discussion by:
Dr. E. R. Harden 539
Dr. R. S. McGeachy 540
Dr. John H. Woodcock 541
Dr. J. A. Morris 541
Dr. J. Symington 542
Dr. F. L. Ray 542
Dr. R. F. Yarborough 542
North Carolina Spirituals—They Must Be Preserved—
Dr. J. M. Parrott 596-600
Popular Health Education—*Dr. F. M. Register*.....544-550
Discussion by:
Dr. R. L. Carlton 546
Dr. J. H. Hamilton 549

Dr. J. Symington 549
Dr. R. F. Yarborough 550
President's Address—*Dr. J. H. Epperson* 531-536
Public Eating Places—*Mr. R. L. Wagner* 550-554
Discussion by:
Dr. J. H. Epperson 554
Mr. James 555
Dr. Sykes 556
Dr. T. C. Britt 557
Dr. J. A. Morris 557
Resolutions 594
Trichiniasis—*Dr. O. H. Perry Pepper* 149-157

V

Van Poole, Dr. C. N. 113

W

Waddill, Mrs. W. B. 592
Wagner, Mr. R. L. 550
Watson, Dr. T. M. 306
Whitaker, Dr. Paul 432
Williams, Dr. C. B. 46, 51, 56
Willis, Dr. Byrd C. 223
Winstead, Dr. John A. 44, 51, 54, 56
Woman's Auxiliary 507-528
Address by President of State Medical Society—*Dr. M. L. Stevens* 515-518
Advisory Committee from Medical Society 508
Awarding of Prizes 519
By-Laws 528
Committee on Arrangements 508
Constitution 527
Election of Officers 519
Greetings from the American Medical Association
President Dr. E. Starr Judd..... 519
Officers 507
Past Presidents 508
President's Report 509
Program of Annual Meeting 508
Program of Entertainment 508
Report of Councillors 511-514
Report of Public Relations Committee 515
Roster of Members 523-526
Treasurer's Report 510
Woman's Auxiliary as a Community Leaven—
Mrs. Walter Jackson Freeman 520-523
Woodcock, Dr. John H. 541
Wright, Dr. John B. 79
Wylie, Dr. W. DeK. 400-407

Y-Z

Yarborough, Dr. R. F. 542-550
Yoder, Dr. P. A. 499
Ziegler, Dr. M. V. 491